

11/17/2005 10604774.trn

Connecting via Winsock to STN

Welcome to STN International! Enter x:x

LOGINID:SSSPTA1626GMS

PASSWORD:

TERMINAL (ENTER 1, 2, 3, OR ?):2

* * * * * Welcome to STN International * * * * *

NEWS 1 Web Page URLs for STN Seminar Schedule - N. America
NEWS 2 "Ask CAS" for self-help around the clock
NEWS 3 JUL 20 Powerful new interactive analysis and visualization software,
STN AnaVist, now available
NEWS 4 AUG 11 STN AnaVist workshops to be held in North America
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NEWS 7 SEP 09 ACD predicted properties enhanced in REGISTRY/ZREGISTRY
NEWS 8 OCT 03 MATHDI removed from STN
NEWS 9 OCT 04 CA/Capplus-Canadian Intellectual Property Office (CIPO) added
to core patent offices
NEWS 10 OCT 06 STN AnaVist workshops to be held in North America
NEWS 11 OCT 13 New CAS Information Use Policies Effective October 17, 2005
NEWS 12 OCT 17 STN(R) AnaVist(TM), Version 1.01, allows the export/download
of Capplus documents for use in third-party analysis and
visualization tools
NEWS 13 OCT 27 Free KWIC format extended in full-text databases
NEWS 14 OCT 27 DIOGENES content streamlined
NEWS 15 OCT 27 EPFULL enhanced with additional content
NEWS 16 NOV 14 CA/Capplus - Expanded coverage of German academic research

NEWS EXPRESS JUNE 13 CURRENT WINDOWS VERSION IS V8.0, CURRENT
MACINTOSH VERSION IS V6.0c(ENG) AND V6.0Jc(JP),
AND CURRENT DISCOVER FILE IS DATED 13 JUNE 2005

NEWS HOURS STN Operating Hours Plus Help Desk Availability
NEWS INTER General Internet Information
NEWS LOGIN Welcome Banner and News Items
NEWS PHONE Direct Dial and Telecommunication Network Access to STN
NEWS WWW CAS World Wide Web Site (general information)

Enter NEWS followed by the item number or name to see news on that
specific topic.

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of commercial gateways or other similar uses is prohibited and may
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* * * * * STN Columbus * * * * *

FILE 'HOME' ENTERED AT 10:20:26 ON 17 NOV 2005

=>

Uploading

THIS COMMAND NOT AVAILABLE IN THE CURRENT FILE

Do you want to switch to the Registry File?

Choice (Y/n):

Switching to the Registry File...

Some commands only work in certain files. For example, the EXPAND command can only be used to look at the index in a file which has an index. Enter "HELP COMMANDS" at an arrow prompt (=>) for a list of commands which can be used in this file.

=> FILE REGISTRY

COST IN U.S. DOLLARS	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	0.21	0.21

FILE 'REGISTRY' ENTERED AT 10:20:38 ON 17 NOV 2005
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2005 American Chemical Society (ACS)

Property values tagged with IC are from the ZIC/VINITI data file provided by InfoChem.

STRUCTURE FILE UPDATES: 15 NOV 2005 HIGHEST RN 868125-94-4
DICTIONARY FILE UPDATES: 15 NOV 2005 HIGHEST RN 868125-94-4

New CAS Information Use Policies, enter HELP USAGETERMS for details.

TSCA INFORMATION NOW CURRENT THROUGH JULY 14, 2005

Please note that search-term pricing does apply when conducting SmartSELECT searches.

*
* The CA roles and document type information have been removed from *
* the IDE default display format and the ED field has been added, *
* effective March 20, 2005. A new display format, IDERL, is now *
* available and contains the CA role and document type information. *
*

Structure search iteration limits have been increased. See HELP SLIMITS for details.

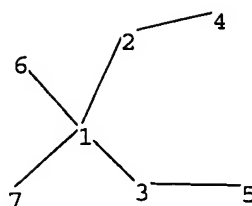
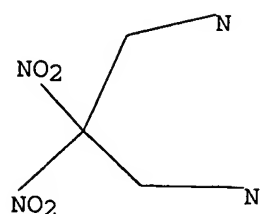
REGISTRY includes numerically searchable data for experimental and predicted properties as well as tags indicating availability of experimental property data in the original document. For information on property searching in REGISTRY, refer to:

<http://www.cas.org/ONLINE/UG/regprops.html>

=>

Uploading C:\Program Files\Stnexp\Queries\10604774.str

11/17/2005 10604774.trn



chain nodes :

1 2 3 4 5 6 7

chain bonds :

1-2 1-3 1-6 1-7 2-4 3-5

exact/norm bonds :

2-4 3-5

exact bonds :

1-2 1-3 1-6 1-7

Match level :

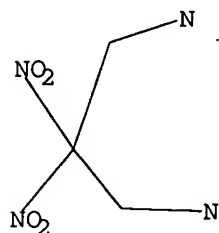
1:CLASS 2:CLASS 3:CLASS 4:CLASS 5:CLASS 6:CLASS 7:CLASS

L1 STRUCTURE UPLOADED

=> d l1

L1 HAS NO ANSWERS

L1 STR



Structure attributes must be viewed using STN Express query preparation.

=> s l1

SAMPLE SEARCH INITIATED 10:20:52 FILE 'REGISTRY'

SAMPLE SCREEN SEARCH COMPLETED - 11 TO ITERATE

100.0% PROCESSED 11 ITERATIONS

5 ANSWERS

SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS: ONLINE **COMPLETE**
BATCH **COMPLETE**

PROJECTED ITERATIONS: 22 TO 418

PROJECTED ANSWERS: 5 TO 234

L2 5 SEA SSS SAM L1

11/17/2005 10604774.trn

=> s l1 sss full

FULL SEARCH INITIATED 10:20:59 FILE 'REGISTRY'

FULL SCREEN SEARCH COMPLETED - 185 TO ITERATE

100.0% PROCESSED 185 ITERATIONS

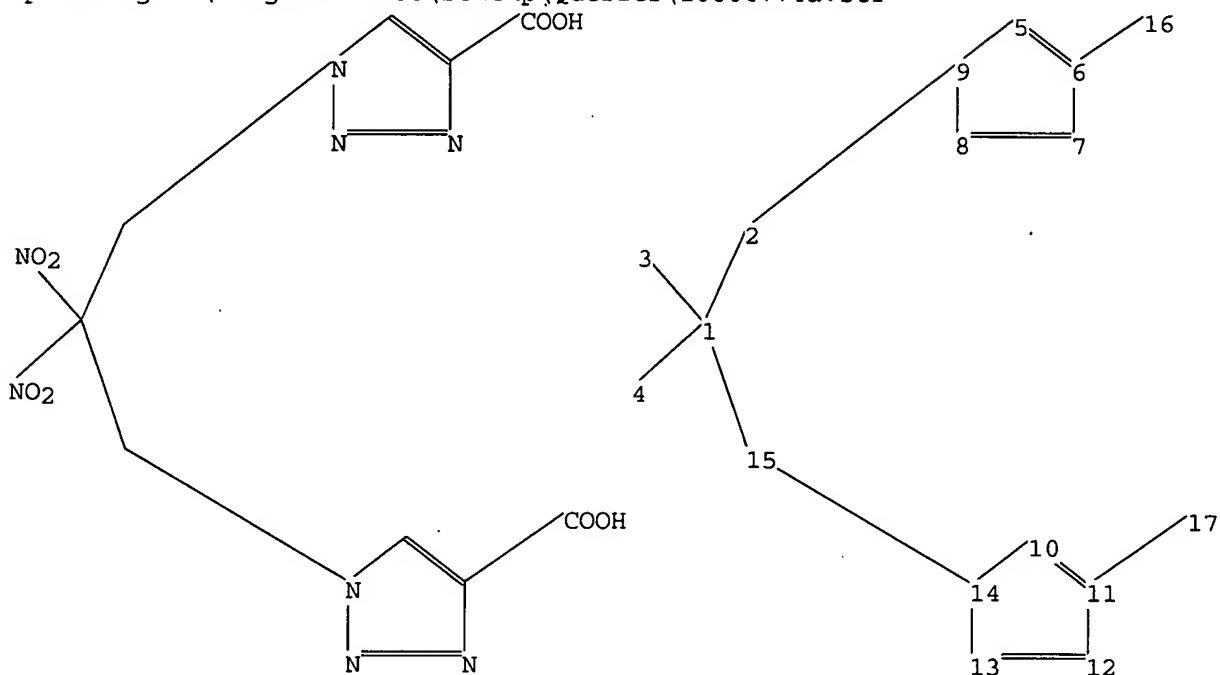
SEARCH TIME: 00.00.01

65 ANSWERS

L3 65 SEA SSS FUL L1

=>

Uploading C:\Program Files\Stnexp\Queries\10604774a.str



chain nodes :

1 2 3 4 15 16 17

ring nodes :

5 6 7 8 9 10 11 12 13 14

chain bonds :

1-2 1-4 1-3 1-15 2-9 6-16 11-17 14-15

ring bonds :

5-6 5-9 6-7 7-8 8-9 10-11 10-14 11-12 12-13 13-14

exact/norm bonds :

2-9 5-9 6-7 7-8 8-9 10-14 11-12 12-13 13-14 14-15

exact bonds :

1-2 1-4 1-3 1-15 5-6 6-16 10-11 11-17

isolated ring systems :

containing 5 : 10 :

Match level :

1:CLASS 2:CLASS 3:CLASS 4:CLASS 5:Atom 6:Atom 7:Atom 8:Atom 9:Atom 10:Atom
11:Atom 12:Atom 13:Atom 14:Atom 15:CLASS 16:CLASS 17:CLASS

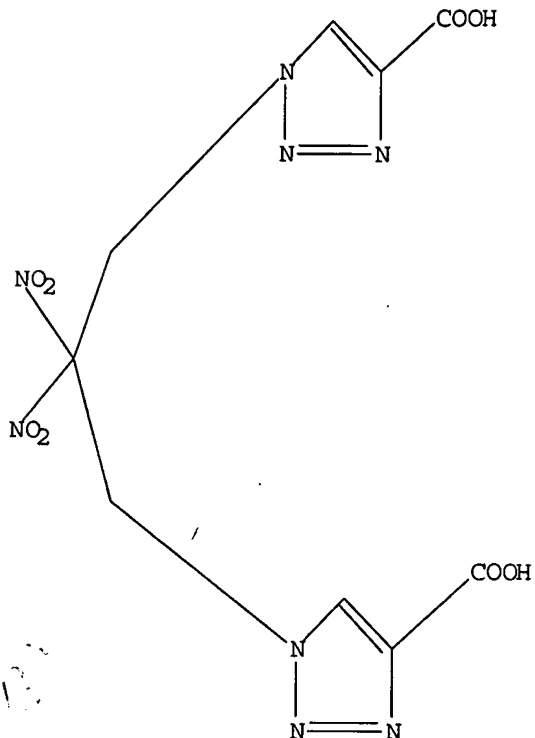
11/17/2005 10604774.trn

L4 STRUCTURE UPLOADED

=> d 14

L4 HAS NO ANSWERS

L4 STR



Structure attributes must be viewed using STN Express query preparation.

=> s 14

SAMPLE SEARCH INITIATED 10:28:12 FILE 'REGISTRY'

SAMPLE SCREEN SEARCH COMPLETED - 0 TO ITERATE

100.0% PROCESSED 0 ITERATIONS

SEARCH TIME: 00.00.01

0 ANSWERS

FULL FILE PROJECTIONS: ONLINE **COMPLETE**

BATCH **COMPLETE**

PROJECTED ITERATIONS: 0 TO 0

PROJECTED ANSWERS: 0 TO 0

L5 0 SEA SSS SAM L4

=> s 14 sss full

FULL SEARCH INITIATED 10:28:18 FILE 'REGISTRY'

FULL SCREEN SEARCH COMPLETED - 3 TO ITERATE

100.0% PROCESSED 3 ITERATIONS

SEARCH TIME: 00.00.01

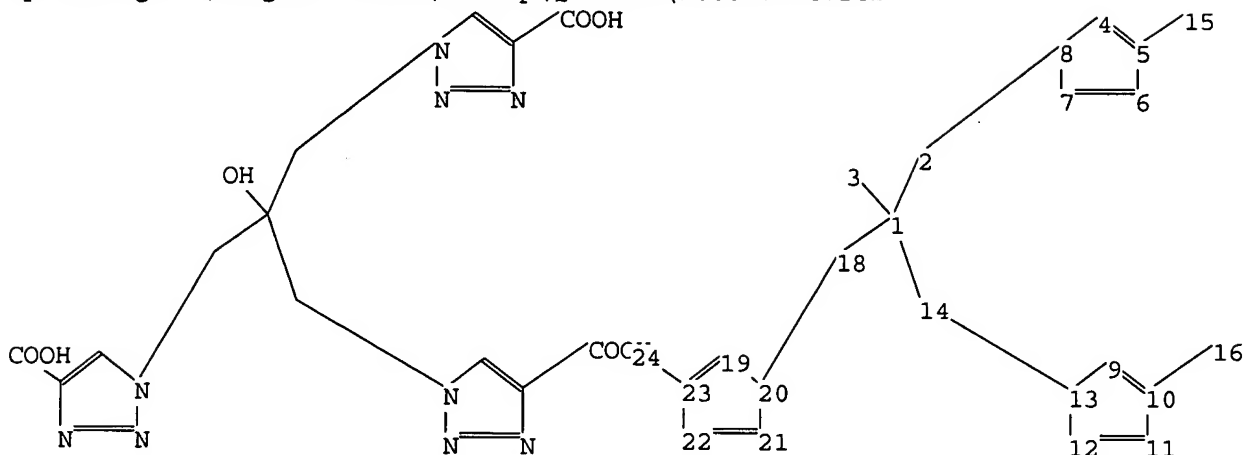
1 ANSWERS

11/17/2005 10604774.trn

L6 1 SEA SSS FUL L4

=>

Uploading C:\Program Files\Stnexp\Queries\10604774b.str



chain nodes :

1 2 3 14 15 16 18 24

ring nodes :

4 5 6 7 8 9 10 11 12 13 19 20 21 22 23

chain bonds :

1-2 1-14 1-3 1-18 2-8 5-15 10-16 13-14 18-20 23-24

ring bonds :

4-5 4-8 5-6 6-7 7-8 9-10 9-13 10-11 11-12 12-13 19-20 19-23 20-21
21-22 22-23

exact/norm bonds :

1-3 2-8 4-8 5-6 6-7 7-8 9-13 10-11 11-12 12-13 13-14 18-20 19-20 20-21
21-22 22-23

exact bonds :

1-2 1-14 1-18 4-5 5-15 9-10 10-16 19-23 23-24

isolated ring systems :

containing 4 : 9 : 19 :

Match level :

1:CLASS 2:CLASS 3:CLASS 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:Atom 10:Atom
11:Atom 12:Atom 13:Atom 14:CLASS 15:CLASS 16:CLASS 18:CLASS 19:Atom 20:Atom
21:Atom 22:Atom 23:Atom 24:CLASS

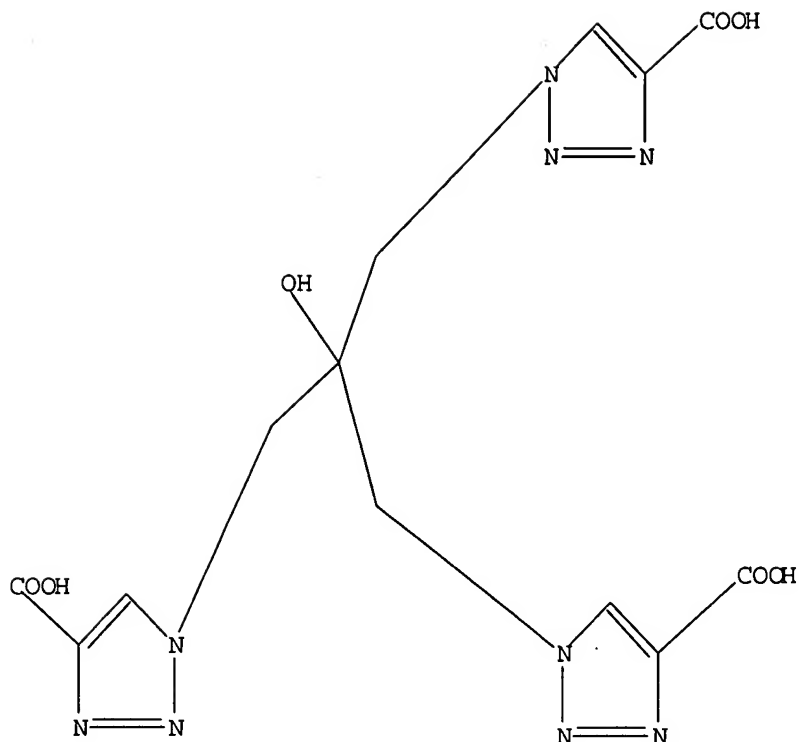
L7 STRUCTURE UPLOADED

=> d l7

L7 HAS NO ANSWERS

11/17/2005 10604774.trn

L7 STR



Structure attributes must be viewed using STN Express query preparation.

=> s 17

SAMPLE SEARCH INITIATED 10:32:57 FILE 'REGISTRY'
SAMPLE SCREEN SEARCH COMPLETED - 0 TO ITERATE

100.0% PROCESSED 0 ITERATIONS 0 ANSWERS
SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS: ONLINE **COMPLETE**
BATCH **COMPLETE**

PROJECTED ITERATIONS: 0 TO 0
PROJECTED ANSWERS: 0 TO 0

L8 0 SEA SSS SAM L7

=> s 17 sss full

FULL SEARCH INITIATED 10:33:04 FILE 'REGISTRY'
FULL SCREEN SEARCH COMPLETED - 21 TO ITERATE

100.0% PROCESSED 21 ITERATIONS
SEARCH TIME: 00.00.01

L9 1 SEA SSS FUL L7

=>

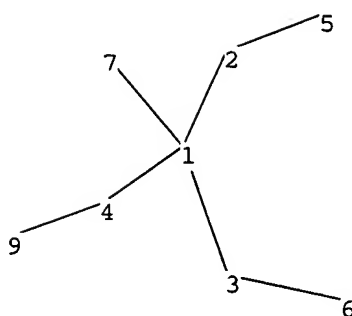
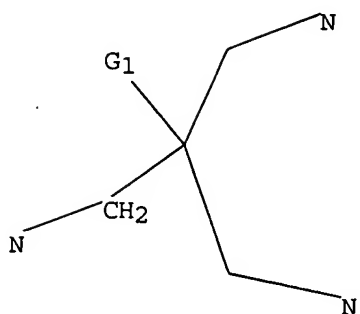
Uploading C:\Program Files\Stnexp\Queries\10604774c.str

10604774.trn

Page 7

10:44

1 ANSWERS



chain nodes :
 1 2 3 4 5 6 7 9
 chain bonds :
 1-2 1-3 1-4 1-7 2-5 3-6 4-9
 exact/norm bonds :
 1-7 2-5 3-6
 exact bonds :
 1-2 1-3 1-4 4-9

G1:N,OH,NO2

Match level :

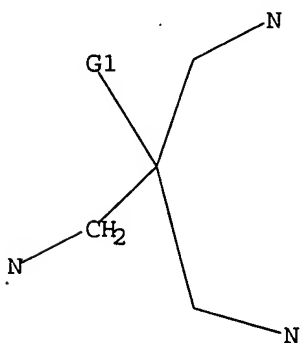
1:CLASS 2:CLASS 3:CLASS 4:CLASS 5:CLASS 6:CLASS 7:CLASS 9:CLASS

L10 STRUCTURE UPLOADED

=> d 110

L10 HAS NO ANSWERS

L10 STR



G1 N,OH,NO2

Structure attributes must be viewed using STN Express query preparation.

=> s 110

SAMPLE SEARCH INITIATED 10:37:18 FILE 'REGISTRY'

SAMPLE SCREEN SEARCH COMPLETED - 1721 TO ITERATE

11/17/2005 10604774.trn

100.0% PROCESSED 1721 ITERATIONS
SEARCH TIME: 00.00.01

2 ANSWERS

FULL FILE PROJECTIONS: ONLINE **COMPLETE**
BATCH **COMPLETE**
PROJECTED ITERATIONS: 31932 TO 36908
PROJECTED ANSWERS: 2 TO 124

L11 2 SEA SSS SAM L10

=> s l10 sss full
FULL SEARCH INITIATED 10:37:24 FILE 'REGISTRY'
FULL SCREEN SEARCH COMPLETED - 33969 TO ITERATE

100.0% PROCESSED 33969 ITERATIONS
SEARCH TIME: 00.00.01

24 ANSWERS

L12 24 SEA SSS FUL L10

=> FIL HCAPLUS
COST IN U.S. DOLLARS
FULL ESTIMATED COST

SINCE FILE	TOTAL
ENTRY	SESSION
655.64	655.85

FILE 'HCAPLUS' ENTERED AT 10:37:31 ON 17 NOV 2005
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FILE COVERS 1907 - 17 Nov 2005 VOL 143 ISS 21
FILE LAST UPDATED: 16 Nov 2005 (20051116/ED)

New CAS Information Use Policies, enter HELP USAGETERMS for details.

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> d his

(FILE 'HOME' ENTERED AT 10:20:26 ON 17 NOV 2005)

FILE 'REGISTRY' ENTERED AT 10:20:38 ON 17 NOV 2005

L1 STRUCTURE UPLOADED
L2 5 S L1
L3 65 S L1 SSS FULL
L4 STRUCTURE UPLOADED
L5 0 S L4

11/17/2005 10604774.trn

L6 1 S L4 SSS FULL
L7 STRUCTURE UPLOADED
L8 0 S L7
L9 1 S L7 SSS FULL
L10 STRUCTURE UPLOADED
L11 2 S L10
L12 24 S L10 SSS FULL

FILE 'HCAPLUS' ENTERED AT 10:37:31 ON 17 NOV 2005

=> s l3

L13 47 L3 ✓

=> s l13 and polyazido

18 POLYAZIDO

L14 2 L13 AND POLYAZIDO

=> s l13 and azide

40607 AZIDE

8478 AZIDES

42978 AZIDE

(AZIDE OR AZIDES)

L15 8 L13 AND AZIDE

=> s l13 and py<=2002

22790379 PY<=2002

L16 41 L13 AND PY<=2002

=> s l6

L17 2 L6 ✓

=> s l9

L18 2 L9 ✓

=> s l12

L19 20 L12 ✓

=> s l19 and polyazido

18 POLYAZIDO

L20 3 L19 AND POLYAZIDO

=> d l14 ibib abs hitstr tot

L14 ANSWER 1 OF 2 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2005:29032 HCAPLUS

DOCUMENT NUMBER: 142:114074

TITLE: Preparation of polyazido carboxylic acid

INVENTOR(S):

Dave, Paritosh R.; Duddu, Raja G.; Damavarapu, Reddy;
Gelber, Nathaniel; Yang, Kathy; Surapaneni, C. Rao

PATENT ASSIGNEE(S): United States Dept. of the Army, USA

SOURCE: U.S., 9 pp.

CODEN: USXXAM

DOCUMENT TYPE:

Patent

LANGUAGE:

English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.

KIND

DATE

APPLICATION NO.

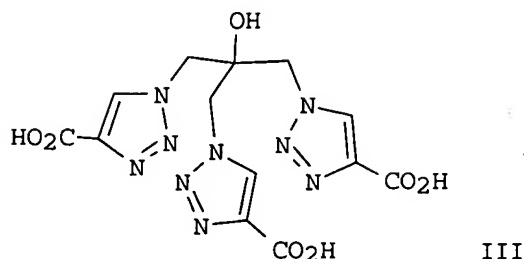
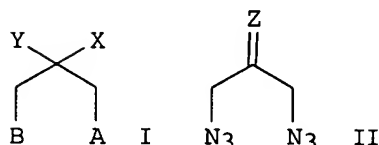
DATE

US 6841690
US 6965042

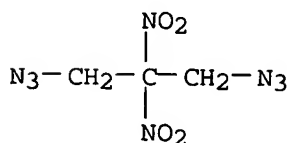
B1 20050111
B1 20051115

US 2003-604778 20030815
US 2003-604777 20030815
US 2002-319801P P 20021219

PRIORITY APPLN. INFO.:
GI



- AB This invention relates to a series of novel compds., such as I [X = N₃, OH, ONO₂, NO₂; Y = CH₂N₃, NO₂; A, B = N₃, 4-carboxytriazolomethyl], and II [Z = CH₂, O, NOH, 2,4-dihydrophenylhydrozono], including 2-azido-2-azidomethyl-1,3-diazidopropane, 2-azidomethyl-2-hydroxy-1,3-diazidopropane, 2-azidomethyl-2-nitrato-1,3-diazidopropane, 2-azidomethyl-2-nitro-1,3-diazidopropane, 2,2-dinitro-1,3-diazidopropane, methallyldiazide, a dimer of methallyldiazide, comprising 3a,8a-bis-azidomethyl-3a,4,8a,9-tetrahydro-3H,8H-bis[1,2,3]triazolo[1,5-a;1'',5''-d]pyrazine, 1,3-diazidoacetone, and 2-oximido-1,3-diazidopropane. Also shown are reaction intermediates of these compds., including 2,2-bis(chloromethyl)oxirane, and 2,2-bis(azidomethyl)oxirane. In addition, a number of potentially useful energetic compds. have been prepared from the low mol. weight **polyazido** compds. above, including N-2(azido-1-azidomethyl-ethylidene)-N''-(2,4-dinitrophenyl)-hydrazine (7-DNPH), 1,3-bis(4-carboxytriazolyl)2,2-dinitropropane, tris(4-carboxytriazolomethyl)methanol, benzene-1,3,5-tricarboxylic acid tris(2-azido-1,1-bisazidomethyl-ethyl)ester, adamantane 1,3,5,7-tetracarboxylic acid tetrakis(2-azido-1,1-bisazidomethyl-ethyl)ester, adamantane carboxylic acid (2-azido-1,1-bisazidomethyl-ethyl)ester, cubane 1,3,5,7-tetracarboxylic acid tetrakis(2-azido-1,1-bisazidomethyl-ethyl)ester, cubane 1,4-dicarboxylic acid bis(2-azido-1,1-bisazidomethyl-ethyl)ester. Thus, tris(4-carboxytriazolomethyl)methanol (III) was prepared by the reaction of 2-azidomethyl-2-hydroxy-1,3-diazidopropane I [A, B = N₃; X = CH₂N₃; Y = OH] (also prepared) with propiolic acid.
- IT 682353-68-0P, 2,2-Dinitro-1,3-diazidopropane
RL: IMF (Industrial manufacture); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation of **polyazido** carboxylic acid esters derived from methallyl dichloride)
- RN 682353-68-0 HCAPLUS
- CN Propane, 1,3-diazido-2,2-dinitro- (9CI) (CA INDEX NAME)



11/17/2005 10604774.trn

REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 2 OF 2 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:137939 HCAPLUS

DOCUMENT NUMBER: 140:357709

TITLE: Preparation of cage molecule based **polyazido** core units for dendrimer synthesis

AUTHOR(S): Dave, Paritosh R.; Duddu, Raja; Yang, Kathy; Damavarapu, Reddy; Gelber, Nathaniel; Surapaneni, Rao; Gilardi, Richard

CORPORATE SOURCE: GEO-CENTERS, INC. at ARDEC, Picatinny Arsenal, NJ, 07806-5000, USA

SOURCE: Tetrahedron Letters (2004) 45(10), 2159-2162

CODEN: TELEAY; ISSN: 0040-4039

PUBLISHER: Elsevier Science B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Core mols. based on benzene-, cubane-, and adamantane-polycarboxylates with peripheral **polyazido** substitution were prepared. The first synthesis of 1,3-diazidoacetone and its conversion to the corresponding oxime, DNPH, and 2,2-dinitro derivs. is also reported. All azido compds. should be considered dangerous and proper precautions should be taken during handling and storage of these mols.

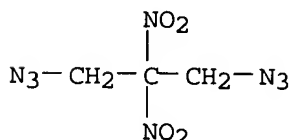
IT 682353-68-0P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(intermediate; preparation of peripheral **polyazido** and benzene and cubane and adamantane core unit cages for triazole and tetrazole containing dendrimer synthesis)

RN 682353-68-0 HCAPLUS

CN Propane, 1,3-diazido-2,2-dinitro- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

=> d l15 ibib abs hitstr tot

L15 ANSWER 1 OF 8 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2005:29032 HCAPLUS

DOCUMENT NUMBER: 142:114074

TITLE: Preparation of **polyazido** carboxylic acid esters

INVENTOR(S): Dave, Paritosh R.; Duddu, Raja G.; Damavarapu, Reddy; Gelber, Nathaniel; Yang, Kathy; Surapaneni, C. Rao

PATENT ASSIGNEE(S): United States Dept. of the Army, USA

SOURCE: U.S., 9 pp.

CODEN: USXXAM

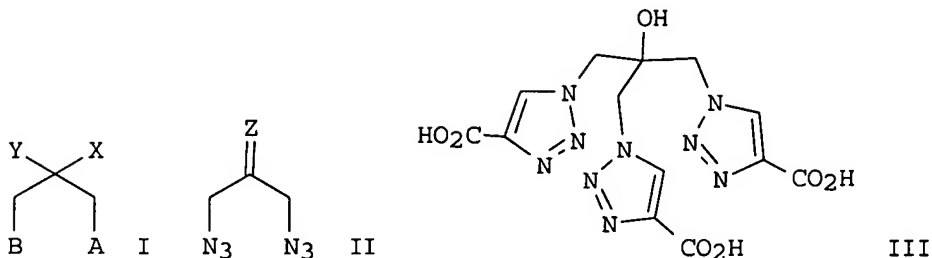
DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

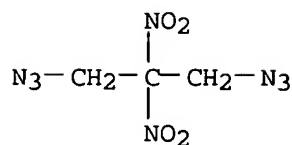
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6841690	B1	20050111	US 2003-604778	20030815
US 6965042	B1	20051115	US 2003-604777	20030815
PRIORITY APPLN. INFO.: GI			US 2002-319801P	P 20021219



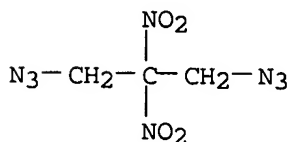
AB This invention relates to a series of novel compds., such as I [X = N₃, OH, ONO₂, NO₂; Y = CH₂N₃, NO₂; A, B = N₃, 4-carboxytriazolomethyl], and II [Z = CH₂, O, NOH, 2,4-dihydrophenylhydrozono], including 2-azido-2-azidomethyl-1,3-diazidopropane, 2-azidomethyl-2-hydroxy-1,3-diazidopropane, 2-azidomethyl-2-nitrato-1,3-diazidopropane, 2-azidomethyl-2-nitro-1,3-diazidopropane, 2,2-dinitro-1,3-diazidopropane, methallyldiazide, a dimer of methallyldiazide, comprising 3a,8a-bis-azidomethyl-3a,4,8a,9-tetrahydro-3H,8H-bis[1,2,3]triazolo[1,5-a;1'',5''-d]pyrazine, 1,3-diazidoacetone, and 2-oximido-1,3-diazidopropane. Also shown are reaction intermediates of these compds., including 2,2-bis(chloromethyl)oxirane, and 2,2-bis(azidomethyl)oxirane. In addition, a number of potentially useful energetic compds. have been prepared from the low mol. weight polyazido compds. above, including N-2(azido-1-azidomethyl-ethylidene)-N''-(2,4-dinitrophenyl)-hydrazine (7-DNPH), 1,3-bis(4-carboxytriazolyl)2,2-dinitropropane, tris(4-carboxytriazolomethyl)methanol, benzene-1,3,5-tricarboxylic acid tris(2-azido-1,1-bisazidomethyl-ethyl)ester, adamantane 1,3,5,7-tetracarboxylic acid tetrakis(2-azido-1,1-bisazidomethyl-ethyl)ester, adamantane carboxylic acid (2-azido-1,1-bisazidomethyl-ethyl)ester, cubane 1,3,5,7-tetracarboxylic acid tetrakis(2-azido-1,1-bisazidomethyl-ethyl)ester, cubane 1,4-dicarboxylic acid bis(2-azido-1,1-bisazidomethyl-ethyl)ester. Thus, tris(4-carboxytriazolomethyl)methanol (III) was prepared by the reaction of 2-azidomethyl-2-hydroxy-1,3-diazidopropane I [A, B = N₃; X = CH₂N₃; Y = OH] (also prepared) with propiolic acid.

IT 682353-68-0P, 2,2-Dinitro-1,3-diazidopropane
 RL: IMF (Industrial manufacture); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (preparation of polyazido carboxylic acid esters derived from methallyl dichloride)
 RN 682353-68-0 HCAPLUS
 CN Propane, 1,3-diazido-2,2-dinitro- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L15 ANSWER 2 OF 8 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 2004:137939 HCAPLUS
 DOCUMENT NUMBER: 140:357709
 TITLE: Preparation of cage molecule based polyazido core units for dendrimer synthesis
 AUTHOR(S): Dave, Paritosh R.; Duddu, Raja; Yang, Kathy; Damavarapu, Reddy; Gelber, Nathaniel; Surapaneni, Rao; Gilardi, Richard
 CORPORATE SOURCE: GEO-CENTERS, INC. at ARDEC, Picatinny Arsenal, NJ, 07806-5000, USA
 SOURCE: Tetrahedron Letters (2004), 45(10), 2159-2162
 CODEN: TELEAY; ISSN: 0040-4039
 PUBLISHER: Elsevier Science B.V.
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 AB Core mols. based on benzene-, cubane-, and adamantane-polycarboxylates with peripheral polyazido substitution were prepared The first synthesis of 1,3-diazidoacetone and its conversion to the corresponding oxime, DNPH, and 2,2-dinitro derivs. is also reported. All azido compds. should be considered dangerous and proper precautions should be taken during handling and storage of these mols.
 IT 682353-68-0P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (intermediate; preparation of peripheral polyazido and benzene and cubane and adamantane core unit cages for triazole and tetrazole containing dendrimer synthesis)
 RN 682353-68-0 HCAPLUS
 CN Propane, 1,3-diazido-2,2-dinitro- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L15 ANSWER 3 OF 8 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 1998:666542 HCAPLUS
 DOCUMENT NUMBER: 130:15525
 TITLE: Thermal decomposition of organic azides in propellants
 AUTHOR(S): Jin, Shaohua; Li, Wen; Song, Quancai
 CORPORATE SOURCE: College of Chemical Engineering and Materials, Beijing

Institute of Technology, Beijing, 100081, Peop. Rep. China

SOURCE: Hanneng Cailiao (1998), 6(3), 123-127

CODEN: HACAFQ; ISSN: 1006-9941

PUBLISHER: Hanneng Cailiao Bianjibu

DOCUMENT TYPE: Journal

LANGUAGE: Chinese

AB The thermal decomposition of 11 compds. containing azidomethyl-gem-dinitro groups

was studied by DTA, and the formal kinetic parameters E and A were obtained. Comparison of the kinetic parameters of some **azides** with those of trinitromethyl compds. with structures similar to the corresponding compds. shows that E values increase due to the introduction of **azide**-group. The influences of the number and position of azidomethyl-gem-dinitro groups on the thermal decomposition kinetic parameters of azidomethyl derivs. were also studied.

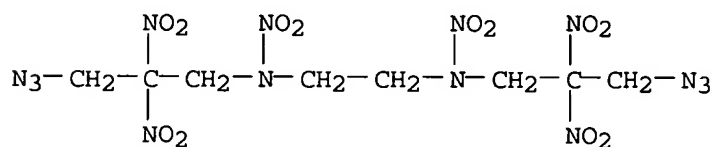
IT 169564-63-0 169564-64-1 180842-20-0

RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)

(thermal decomposition of organic **azides** in propellants)

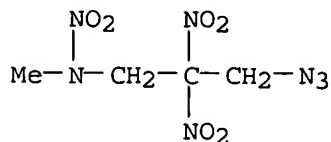
RN 169564-63-0 HCAPLUS

CN 1,2-Ethanediamine, N,N'-bis(3-azido-2,2-dinitropropyl)-N,N'-dinitro- (9CI)
(CA INDEX NAME)



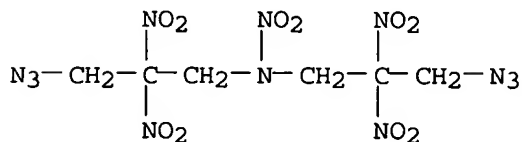
RN 169564-64-1 HCAPLUS

CN 1-Propanamine, 3-azido-N-methyl-N,2,2-trinitro- (9CI) (CA INDEX NAME)



RN 180842-20-0 HCAPLUS

CN 1-Propanamine, 3-azido-N-(3-azido-2,2-dinitropropyl)-N,2,2-trinitro- (9CI)
(CA INDEX NAME)

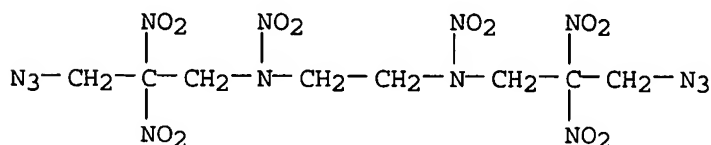


L15 ANSWER 4 OF 8 HCAPLUS COPYRIGHT 2005 ACS on STN

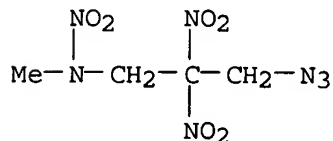
ACCESSION NUMBER: 1997:415029 HCAPLUS

DOCUMENT NUMBER: 127:95011

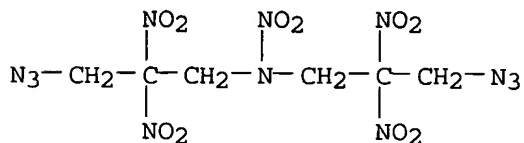
TITLE: Synthesis of 3-azido-2,2-dinitropropyl-substituted nitramines
 AUTHOR(S): Yan, Hong; Guan, Xiao-Pei
 CORPORATE SOURCE: Dep. Chem. and Environmental Engineering, Beijing Polytechnic Univ., Beijing, 100022, Peop. Rep. China
 SOURCE: Youji Huaxue (1997), 17(3), 284-288
 CODEN: YCHHDX; ISSN: 0253-2786
 PUBLISHER: Kexue
 DOCUMENT TYPE: Journal
 LANGUAGE: Chinese
 AB Title **azides** MeN(NO₂)CH₂C(NO₂)₂CH₂N₃, [CH₂N(NO₂)CH₂C(NO₂)₂CH₂N₃]₂, and O₂NN[CH₂C(NO₂)₂CH₂N₃]₂ were prepared from alcs. MeN(NO₂)CH₂C(NO₂)₂CH₂OH, [CH₂N(NO₂)CH₂C(NO₂)₂CH₂OH]₂, and O₂NN[CH₂C(NO₂)₂CH₂OH]₂ via the corresponding triflates.
 IT **169564-63-0P 169564-64-1P 180842-20-0P**
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (synthesis of 3-azido-2,2-dinitropropyl-substituted nitramines)
 RN 169564-63-0 HCAPLUS
 CN 1,2-Ethanediamine, N,N'-bis(3-azido-2,2-dinitropropyl)-N,N'-dinitro- (9CI)
 (CA INDEX NAME)



RN 169564-64-1 HCAPLUS
 CN 1-Propanamine, 3-azido-N-methyl-N,2,2-trinitro- (9CI) (CA INDEX NAME)



RN 180842-20-0 HCAPLUS
 CN 1-Propanamine, 3-azido-N-(3-azido-2,2-dinitropropyl)-N,2,2-trinitro- (9CI)
 (CA INDEX NAME)



L15 ANSWER 5 OF 8 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 1996:514610 HCAPLUS
 DOCUMENT NUMBER: 125:172480
 TITLE: Synthesis of high density azidonitramines
 AUTHOR(S): Yan, Hong; Guan, Xiao-Pei; Chen, Bo-Ren
 CORPORATE SOURCE: Dep. of Chemistry and Environmental Engineering,

Beijing Polytechnic Univ., Beijing, 100022, Peop. Rep. China

SOURCE: International Annual Conference of ICT (1996), 27th(Energetic Materials), 135.1-135.5
CODEN: IACIEQ

PUBLISHER: Fraunhofer-Institut fuer Chemische Technologie

DOCUMENT TYPE: Journal

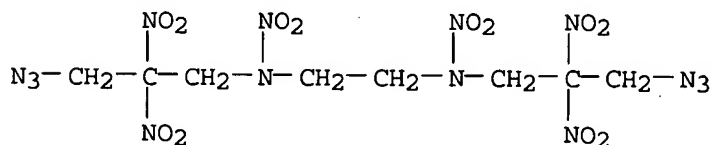
LANGUAGE: English

AB Three nitramines containing the 2-azido-1,1-dinitroethyl group have been synthesized, one of which, 1,7-diazido-2,2,4,6,6-pentanitro-4-azaheptane, possesses a d. of 1.835 g/cm³. For these compds. the mol. structures have been determined, and some of the properties (e.g., decomposition point) are also reported.

IT 169564-63-0P 169564-64-1P 180842-20-0P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(preparation and properties of)

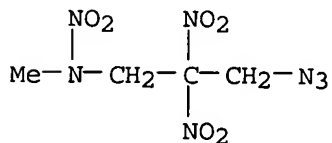
RN 169564-63-0 HCAPLUS

CN 1,2-Ethanediamine, N,N'-bis(3-azido-2,2-dinitropropyl)-N,N'-dinitro- (9CI)
(CA INDEX NAME)



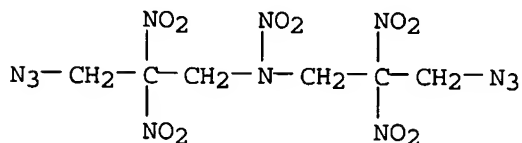
RN 169564-64-1 HCAPLUS

CN 1-Propanamine, 3-azido-N-methyl-N,2,2-trinitro- (9CI) (CA INDEX NAME)



RN 180842-20-0 HCAPLUS

CN 1-Propanamine, 3-azido-N-(3-azido-2,2-dinitropropyl)-N,2,2-trinitro- (9CI)
(CA INDEX NAME)



L15 ANSWER 6 OF 8 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1995:830797 HCAPLUS

DOCUMENT NUMBER: 123:291159

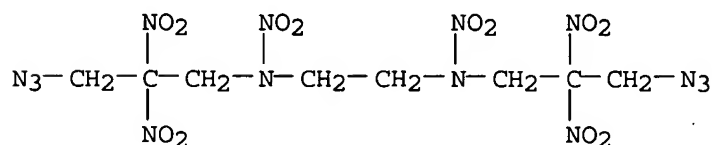
TITLE: Development of energetic additives for propellants in China

AUTHOR(S): Ou, Yuxiang; Chen, Boren; Yan, Hong; Jia, Huiping; Li,

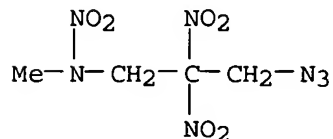
Jianjun; Dong, Shuan
 CORPORATE SOURCE: Department Chemical Engineering, Beijing Institute
 Technology, Beijing, 100081, Peop. Rep. China
 SOURCE: Journal of Propulsion and Power (1995), 11(4), 838-47
 CODEN: JPPOEL; ISSN: 0748-4658
 PUBLISHER: American Institute of Aeronautics and Astronautics
 DOCUMENT TYPE: Journal
 LANGUAGE: English

AB The development of energetic **azide** binders and plasticizers for solid propellants in China was described, focusing on 14 **azides**. The reaction routes and conditions for preparing these **azides** were summarized; the performance of the **azides**, including d., m.p., enthalpy of formation, thermal decomposition temperature (determined by differential scanning calorimetry or DTA), impact sensitivity, etc, were presented. The **azides** were arranged in six categories: (1) **azide** polyethers (glycidyl **azide** polymer, 3,3-bis(azidomethyl)oxetane (BAMO) homopolymer, and BAMO-tetrahydrofuran copolymer), (2) azidonitramines (1,5-diazo-3-nitrazapentane, N-nitro-N-azidomethyl-gem-dinitroethylmethylamine, and N,N'-bis(azidomethyl-gem-dinitroethyl)ethylenedinitramine), (3) azidonitro compds. [2-nitro-2-methyl-1,3-diazidopropane, 2-nitro-2-azidomethyl-1,3-diazidopropane, and 1-azido-2-(2,4,6-trinitrophenyl)ethane], (4) aliphatic **azides** (1,2,4, triazidobutane and tetraazidomethylemethane), (5) azidonitrates (pentaerythritol diazidodinitrate), and (6) oxygen heterocyclic **azides** (3-azidomethyl-3-ethyloxetane and 2,2-dimethyl-5-azidomethyl-5-nitro-1,3-dioxane).

IT 169564-63-0P 169564-64-1P
 RL: IMF (Industrial manufacture); NUU (Other use, unclassified); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses) (development, synthesis, and properties of energetic binders and plasticizers for solid propellants)
 RN 169564-63-0 HCAPLUS
 CN 1,2-Ethanediamine, N,N'-bis(3-azido-2,2-dinitropropyl)-N,N'-dinitro- (9CI) (CA INDEX NAME)



RN 169564-64-1 HCAPLUS
 CN 1-Propanamine, 3-azido-N-methyl-N,2,2-trinitro- (9CI) (CA INDEX NAME)



L15 ANSWER 7 OF 8 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 1967:453645 HCAPLUS
 DOCUMENT NUMBER: 67:53645

TITLE: Preparation of nitro aza diisocyanates suitable as explosives
 INVENTOR(S): Vanneman, Clinton R.; Klager, Karl
 PATENT ASSIGNEE(S): Aerojet-General Corp.
 SOURCE: Ger., 3 pp.
 CODEN: GWXXAW
 DOCUMENT TYPE: Patent
 LANGUAGE: German
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

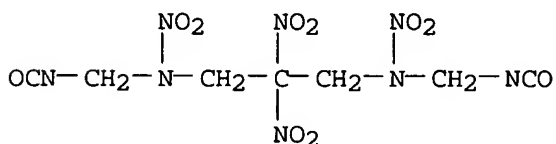
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 1238901		19670420	DE	19601201

AB An outline of the synthesis of the title compds. (I) is given. Nitro aza dicarboxylic acids (II) were prepared either by hydrolysis of the corresponding nitro aza dinitriles or by condensation of a nitro diol with an amino ester, followed by HNO₃ oxidation. The various II were converted to the corresponding acid chlorides (III) with SOCl₂. Treatment of III with NaN₃, KN₃, or Mg(N₃)₂ at 0-5° gave the corresponding azides, which were converted to I by a Curtius rearrangement. Thus, a solution of 11 g. 4,7,7,10-tetranitro-4,10-diaza-1,13-tridecanedicarbonyl chloride in 50 ml. Me₂CO was added dropwise to a solution of 4.6 g. NaN₃ in 15 ml. H₂O (kept at 5°). The mixture was stirred 1 hr. at 0° and filtered. The residue was washed with H₂O and (CH₂Cl₂)₂ and dried in vacuo to give 3,6,6,9-tetranitro-3,9-diazaundecamethylene diisocyanate, m. 88-90° (CHCl₃).

IT 17695-19-1
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (explosive properties of)

RN 17695-19-1 HCAPLUS

CN Isocyanic acid, (2,2-dinitrotrimethylene)bis[(nitroimino)methylene] ester (8CI) (CA INDEX NAME)



L15 ANSWER 8 OF 8 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1963:461451 HCAPLUS

DOCUMENT NUMBER: 59:61451

ORIGINAL REFERENCE NO.: 59:11236b-g

TITLE: Synthesis and reactions of trinitromethyl compounds

AUTHOR(S): Frankel, M. B.

CORPORATE SOURCE: Stanford Res. Inst., Menlo Park, CA

SOURCE: Tetrahedron (1963), 19(Suppl. 1), 213-17

CODEN: TETRAB; ISSN: 0040-4020

DOCUMENT TYPE: Journal

LANGUAGE: Unavailable

AB A systematic study of the synthesis of trinitromethyl compds. from HC(NO₂)₃ and (O₂N)₃CCH₂OH (I) is summarized. HC(NO₂)₃ adds readily in a Michael type of addition to α,β-unsatd. compds. such as H₂C:CHCO₂H and its esters, HOCH₂COCH:CH₂, and O₂NCH:CH₂ to yield 83% (NO₂)₃CCH₂CH₂CO₂H, m. 61°; 64% (NO₂)₃CCH₂CH₂CO₂CH:CH₂, b₆

85-9°, n25D 1.4707; 71% (NO₂)₃CCH₂CH₂CO₂CH₂- CH:CH₂, b0.3
 71-2°, n25D 1.4676; 74% (NO₂)₃CCH₂CH₂CO- CH₂OH, m. 77°; and
 50% (NO₂)₃CCH₂CH₂NO₂, m. 50-1°. Of special interest was addition of
 HC(NO₂)₃ to H₂C:C(NO₂)CH₂OAc (II). Condensation of MeNO₂ with HCHO in the
 presence of NaOH gave the acid Na salt, HOCH₂C(: NO₂Na)CH₂OH, which was
 acidified and acetylated to give AcOCH₂CH(NO₂)CH₂OAc, and converted by
 vapor phase cleavage at 180°/100 mm. to II. Addition of MeCH(NO₂)₂ to
 II gave MeC(NO₂)₂CH₂CH(NO₂)CH₂C(NO₂)₂Me, and in similar manner, addition of
 HC(NO₂)₃ to II yielded (NO₂)₃CCH₂CH(NO₂)CH₂C(NO₂)₃. It was of interest to
 determine the various types of trinitromethyl compds. that could be prepared

from

(NO₂)₃CCH₂CH₂CO₂H (III). III refluxed 4 hrs. with SOCl₂ yielded 33%
 [(NO₂)₃CCH₂CH₂CO]₂O, m. 109-10°, but 20 hrs. refluxing gave 82%
 (NO₂)₃CCH₂CH₂COCl (IV), b0.5 65-6°, n25D 1.4835. IV treated with
 NaN₃ gave the **azide**, converted in situ to 71.2% (NO₂)₃CCH₂CH₂NCO
 (V), b10 73-5°, n25D 1.4805. V hydrolyzed with HCl yielded 94%
 (NO₂)₃CCH₂CH₂NH₂.HCl (VI), m. 161-3°. V and VI were used for the
 preparation of trinitromethyl carbamates (VII) and trinitromethylamines (VIII).
 VII were prepared by addition of I to various isocyanates and the addition of
 different alcs. to V. I is considerably more acidic than ordinary alcs.
 and reacts less readily with isocyanates. I refluxed with an isocyanate
 in CHCl₃ several hrs. in the presence of a catalytic amount of ferric
 acetylacetonate gave essentially quant. yields of the tabulated VII.
 All were nitrated to the corresponding N-nitro derivs. VIII were prepared by
 the Mannich condensation of I with various primary amines and the reaction
 of VI with nitro alcs. Since nitro alcs. are demethylolated in the
 presence of base, the condensations were carried out by portionwise addition
 of an equivalent amount of base to VI and nitro alc. in H₂O with immediate

precipitation

of the tabulated VIII. All these secondary amines were nitrated to the
 corresponding nitramines. The reaction of (HOCH₂)₂C(NO₂)₂ with VI and
 HCHO yielded 40.8% 1,3-bis-(3,3,3-trinitropropyl)-5,5-
 dinitroperhydropyrimidine, m. 119-21°. Condensation of VI with
 HCHO gave a quant. yield of 1,3,5-tris(3,3,3-trinitropropyl)perhydro-1,3,5-
 triazine, m. 121-3°. Esters of I were prepared according to the
 procedure of Hill (CA 49, 8103f) by treating the acid chlorides with I in
 the presence of a catalytic amount of AlCl₃. The esterification of
 4,4,6,6,8,8-hexanitroundecanedioic acid was carried out in 100% H₂SO₄ as
 the ionizing solvent. The 2,2,2-trinitroethyl esters prepared are
 summarized (ester, % yield, and m.p. given): N(NO₂) [CH₂CO₂CH₂C(NO₂)₃]₂,
 77.8, 160.0-60.5°; N(NO₂) [CH₂CH₂CO₂CH₂C(NO₂)₃]₂, 35.9,
 110-11°; [CH₂N(NO₂)CH₂CO₂CH₂C(NO₂)₃]₂, 5.6, 195-7°;
 [CH₂N(NO₂)CH₂CH₂CO₂CH₂C(NO₂)₃]₂ 85.5, 126-8°;
 MeC(NO₂)₂CH₂N(NO₂)CH₂CO₂CH₂C(NO₂)₃, 50.3, 121.0- 1.5°;
 C(NO₂)₂ [CH₂CH₂CO₂CH₂C(NO₂)₃]₂, 47.0, 170-1°; C-
 (NO₂)₂ [CH₂C(NO₂)₂CH₂CH₂CO₂CH₂C(NO₂)₃]₂, 87.8, 117-18°.

IT 49614-89-3, 1,3-Propanediamine, N,N',2,2-tetranitro-N,N'-bis(3,3,3-
 trinitropropyl)- 91004-98-7, 1,3-Propanediamine,
 2,2-dinitro-N,N'-bis(3,3,3-trinitropropyl)-
 (preparation of)

RN 49614-89-3 HCAPLUS

CN 1,3-Propanediamine, N,N',2,2-tetranitro-N,N'-bis(3,3,3-trinitropropyl)-
 (7CI, 9CI) (CA INDEX NAME)

OH, ONO₂, NO₂; Y = CH₂N₃, NO₂; A, B = N₃, 4-carboxytriazolomethyl], and II [Z = CH₂, O, NOH, 2,4-dihydrophenylhydrozono], including 2-azido-2-azidomethyl-1,3-diazidopropane, 2-azidomethyl-2-hydroxy-1,3-diazidopropane, 2-azidomethyl-2-nitrato-1,3-diazidopropane, 2-azidomethyl-2-nitro-1,3-diazidopropane, 2,2-dinitro-1,3-diazidopropane, methallyldiazide, a dimer of methallyldiazide, comprising 3a,8a-bis-azidomethyl-3a,4,8a,9-tetrahydro-3H,8H-bis[1,2,3]triazolo[1,5-a;1'',5''-d]pyrazine, 1,3-diazidoacetone, and 2-oximido-1,3-diazidopropane. Also shown are reaction intermediates of these compds., including 2,2-bis(chloromethyl)oxirane, and 2,2-bis(azidomethyl)oxirane. In addition, a number of potentially useful energetic compds. have been prepared from the low mol. weight polyazido compds. above, including N-2(azido-1-azidomethyl-ethylidene)-N''-(2,4-dinitrophenyl)-hydrazine (7-DNPH), 1,3-bis(4-carboxytriazolyl)2,2-dinitropropane, tris(4-carboxytriazolomethyl)methanol, benzene-1,3,5-tricarboxylic acid tris(2-azido-1,1-bisazidomethyl-ethyl)ester, adamantane 1,3,5,7-tetracarboxylic acid tetrakis(2-azido-1,1-bisazidomethyl-ethyl)ester, adamantane carboxylic acid (2-azido-1,1-bisazidomethyl-ethyl)ester, cubane 1,3,5,7-tetracarboxylic acid tetrakis(2-azido-1,1-bisazidomethyl-ethyl)ester, cubane 1,4-dicarboxylic acid bis(2-azido-1,1-bisazidomethyl-ethyl)ester. Thus, tris(4-carboxytriazolomethyl)methanol (III) was prepared by the reaction of 2-azidomethyl-2-hydroxy-1,3-diazidopropane I [A, B = N₃; X = CH₂N₃; Y = OH] (also prepared) with propiolic acid.

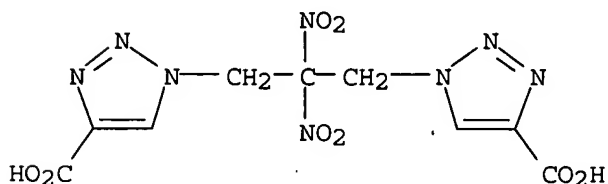
IT 682353-70-4P

RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP (Preparation)

(preparation of polyazido carboxylic acid esters derived from methallyl dichloride)

RN 682353-70-4 HCAPLUS

CN 1H-1,2,3-Triazole-4-carboxylic acid, 1,1'-(2,2-dinitro-1,3-propanediyl)bis-(9CI) (CA INDEX NAME)



REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L17 ANSWER 2 OF 2 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:137939 HCAPLUS

DOCUMENT NUMBER: 140:357709

TITLE: Preparation of cage molecule based polyazido core units for dendrimer synthesis

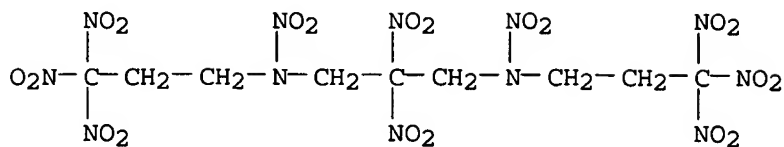
AUTHOR(S): Dave, Paritosh R.; Duddu, Raja; Yang, Kathy; Damavandapu, Reddy; Gelber, Nathaniel; Surapaneni, Rao; Gilardi, Richard

CORPORATE SOURCE: GEO-CENTERS, INC. at ARDEC, Picatinny Arsenal, NJ, 07806-5000, USA

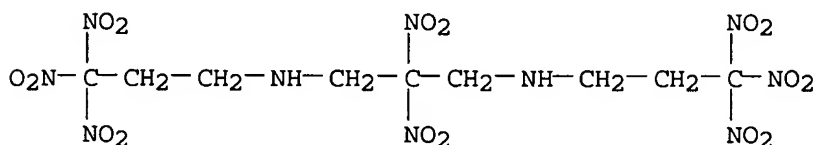
SOURCE: Tetrahedron Letters (2004), 45(10), 2159-2162

CODEN: TELEAY; ISSN: 0040-4039

PUBLISHER: Elsevier Science B.V.



RN 91004-98-7 HCAPLUS
CN 1,3-Propanediamine, 2,2-dinitro-N,N'-bis(3,3,3-trinitropropyl)- (6CI, 7CI)
(CA INDEX NAME)

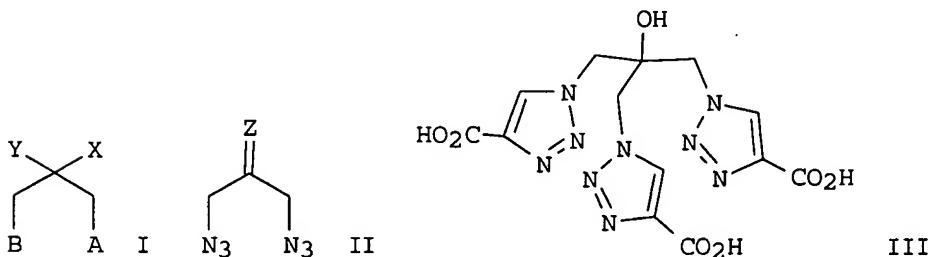


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L17 ANSWER 1 OF 2 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2005:29032 HCAPLUS
DOCUMENT NUMBER: 142:114074
TITLE: Preparation of polyazido carboxylic acid esters
INVENTOR(S): Dave, Paritosh R.; Duddu, Raja G.; Damavarapu, Reddy;
Gelber, Nathaniel; Yang, Kathy; Surapaneni, C. Rao
PATENT ASSIGNEE(S): United States Dept. of the Army, USA
SOURCE: U.S., 9 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6841690	B1	20050111	US 2003-604778	20030815
US 6965042	B1	20051115	US 2003-604777	20030815
PRIORITY APPLN. INFO.:			US 2002-319801P	P 20021219

GI



AB This invention relates to a series of novel compds., such as I [X = N3,

DOCUMENT TYPE: Journal
 LANGUAGE: English

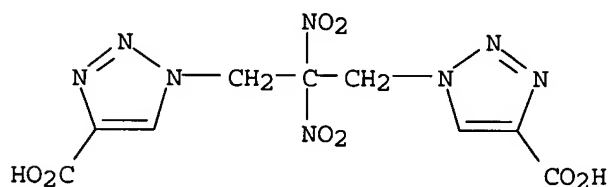
AB Core mols. based on benzene-, cubane-, and adamantane-polycarboxylates with peripheral polyazido substitution were prepared. The first synthesis of 1,3-diazidoacetone and its conversion to the corresponding oxime, DNPH, and 2,2-dinitro derivs. is also reported. All azido compds. should be considered dangerous and proper precautions should be taken during handling and storage of these mols.

IT 682353-70-4P

RL: SPN (Synthetic preparation); PREP (Preparation)
 (preparation of peripheral polyazido and benzene and cubane and adamantane core unit cages for triazole and tetrazole containing dendrimer synthesis)

RN 682353-70-4 HCAPLUS

CN 1H-1,2,3-Triazole-4-carboxylic acid, 1,1'-(2,2-dinitro-1,3-propanediyl)bis-
 (9CI) (CA INDEX NAME)



REFERENCE COUNT: 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

=> d l18 ibib abs hitstr tot

L18 ANSWER 1 OF 2 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2005:29032 HCAPLUS

DOCUMENT NUMBER: 142:114074

TITLE: Preparation of polyazido carboxylic acid esters

INVENTOR(S): Dave, Paritosh R.; Duddu, Raja G.; Damavarapu, Reddy;
 Gelber, Nathaniel; Yang, Kathy; Surapaneni, C. Rao

PATENT ASSIGNEE(S): United States Dept. of the Army, USA

SOURCE: U.S., 9 pp.

CODEN: USXXAM

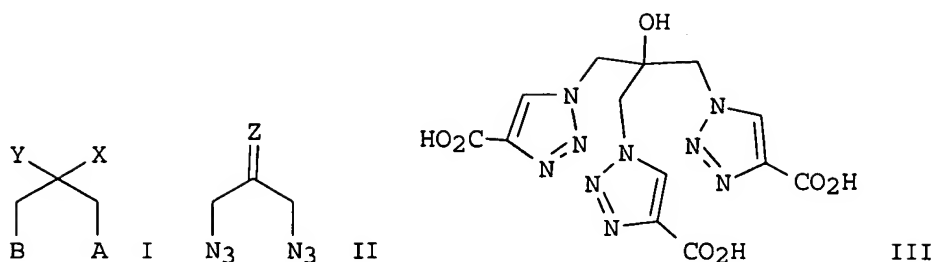
DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6841690	B1	20050111	US 2003-604778	20030815
US 6965042	B1	20051115	US 2003-604777	20030815
PRIORITY APPEN. INFO.: GI			US 2002-319801P	P 20021219



AB This invention relates to a series of novel compds., such as I [X = N₃, OH, ONO₂, NO₂; Y = CH₂N₃, NO₂; A, B = N₃, 4-carboxytriazolomethyl], and II [Z = CH₂, O, NOH, 2,4-dihydrophenylhydrozono], including 2-azido-2-azidomethyl-1,3-diazidopropane, 2-azidomethyl-2-hydroxy-1,3-diazidopropane, 2-azidomethyl-2-nitrato-1,3-diazidopropane, 2-azidomethyl-2-nitro-1,3-diazidopropane, 2,2-dinitro-1,3-diazidopropane, methallyldiazide, a dimer of methallyldiazide, comprising 3a,8a-bis-azidomethyl-3a,4,8a,9-tetrahydro-3H,8H-bis[1,2,3]triazolo[1,5-a;1'',5''-d]pyrazine, 1,3-diazidoacetone, and 2-oximido-1,3-diazidopropane. Also shown are reaction intermediates of these compds., including 2,2-bis(chloromethyl)oxirane, and 2,2-bis(azidomethyl)oxirane. In addition, a number of potentially useful energetic compds. have been prepared from the low mol. weight polyazido compds. above, including N-2(azido-1-azidomethyl-ethylidene)-N''-(2,4-dinitrophenyl)-hydrazine (7-DNPH), 1,3-bis(4-carboxytriazolyl)2,2-dinitropropane, tris(4-carboxytriazolomethyl)methanol, benzene-1,3,5-tricarboxylic acid tris(2-azido-1,1-bisazidomethyl-ethyl)ester, adamantane 1,3,5,7-tetracarboxylic acid tetrakis(2-azido-1,1-bisazidomethyl-ethyl)ester, adamantane carboxylic acid (2-azido-1,1-bisazidomethyl-ethyl)ester, cubane 1,3,5,7-tetracarboxylic acid tetrakis(2-azido-1,1-bisazidomethyl-ethyl)ester, cubane 1,4-dicarboxylic acid bis(2-azido-1,1-bisazidomethyl-ethyl)ester. Thus, tris(4-carboxytriazolomethyl)methanol (III) was prepared by the reaction of 2-azidomethyl-2-hydroxy-1,3-diazidopropane I [A, B = N₃; X = CH₂N₃; Y = OH] (also prepared) with propiolic acid.

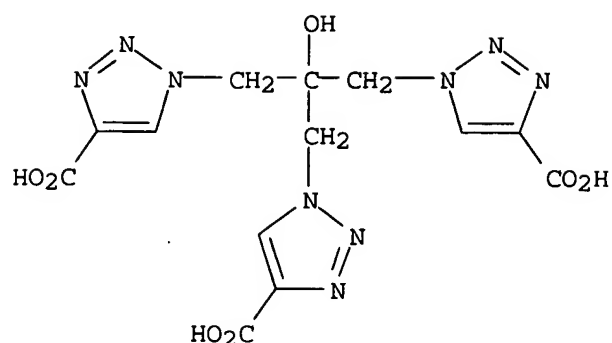
IT 682353-71-5P, Tris(4-carboxytriazolomethyl)methanol

RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP (Preparation)

(preparation of polyazido carboxylic acid esters derived from methallyl dichloride)

RN 682353-71-5 HCAPLUS

CN 1H-1,2,3-Triazole-4-carboxylic acid, 1,1'-[2-[(4-carboxy-1H-1,2,3-triazol-1-yl)methyl]-2-hydroxy-1,3-propanediyl]bis- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L18 ANSWER 2 OF 2 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:137939 HCAPLUS

DOCUMENT NUMBER: 140:357709

TITLE: Preparation of cage molecule based polyazido core units for dendrimer synthesis

AUTHOR(S): Dave, Paritosh R.; Duddu, Raja; Yang, Kathy; Damavarapu, Reddy; Gelber, Nathaniel; Surapaneni, Rao; Gilardi, Richard

CORPORATE SOURCE: GEO-CENTERS, INC. at ARDEC, Picatinny Arsenal, NJ, 07806-5000, USA

SOURCE: Tetrahedron Letters (2004), 45(10), 2159-2162
CODEN: TELEAY; ISSN: 0040-4039

PUBLISHER: Elsevier Science B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Core mols. based on benzene-, cubane-, and adamantane-polycarboxylates with peripheral polyazido substitution were prepared. The first synthesis of 1,3-diazidoacetone and its conversion to the corresponding oxime, DNPH, and 2,2-dinitro derivs. is also reported. All azido compds. should be considered dangerous and proper precautions should be taken during handling and storage of these mols.

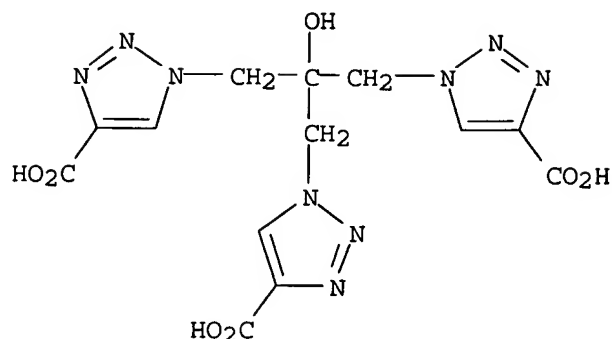
IT 682353-71-5P

RL: SPN (Synthetic preparation); PREP (Preparation)

(preparation of peripheral polyazido and benzene and cubane and adamantane core unit cages for triazole and tetrazole containing dendrimer synthesis)

RN 682353-71-5 HCAPLUS

CN 1H-1,2,3-Triazole-4-carboxylic acid, 1,1'-[2-[(4-carboxy-1H-1,2,3-triazol-1-yl)methyl]-2-hydroxy-1,3-propanediyl]bis- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

=> d 120 ibib abs hitstr tot

L20 ANSWER 1 OF 3 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2005:29032 HCAPLUS

DOCUMENT NUMBER: 142:114074

TITLE: Preparation of polyazido carboxylic acid esters

INVENTOR(S): Dave, Paritosh R.; Duddu, Raja G.; Damavarapu, Reddy; Gelber, Nathaniel; Yang, Kathy; Surapaneni, C. Rao

PATENT ASSIGNEE(S): United States Dept. of the Army, USA

SOURCE: U.S., 9 pp.

CODEN: USXXAM

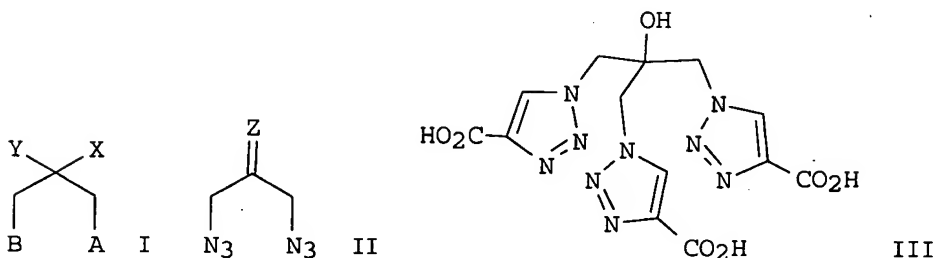
DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6841690	B1	20050211	US 2003-604778	20030815
US 6965042	B1	20051115	US 2003-604777	20030815
PRIORITY APPLN. INFO.: GI			US 2002-319801P	P 20021219



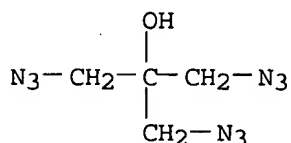
AB This invention relates to a series of novel compds., such as I [X = N3, OH, ONO2, NO2; Y = CH2N3, NO2; A, B = N3, 4-carboxytriazolomethyl], and II [Z = CH2, O, NOH, 2,4-dihydrophenylhydrozono], including

2-azido-2-azidomethyl-1,3-diazidopropane, 2-azidomethyl-2-hydroxy-1,3-diazidopropane, 2-azidomethyl-2-nitrato-1,3-diazidopropane, 2-azidomethyl-2-nitro-1,3-diazidopropane, 2,2-dinitro-1,3-diazidopropane, methallyldiazide, a dimer of methallyldiazide, comprising 3a,8a-bis-azidomethyl-3a,4,8a,9-tetrahydro-3H,8H-bis[1,2,3]triazolo[1,5-a;1'',5''-d]pyrazine, 1,3-diazidoacetone, and 2-oximido-1,3-diazidopropane. Also shown are reaction intermediates of these compds., including 2,2-bis(chloromethyl)oxirane, and 2,2-bis(azidomethyl)oxirane. In addition, a number of potentially useful energetic compds. have been prepared from the low mol. weight **polyazido** compds. above, including N-2 (azido-1-azidomethyl-ethylidene)-N''-(2,4-dinitrophenyl)-hydrazine (7-DNPH), 1,3-bis(4-carboxytriazolyl)2,2-dinitropropane, tris(4-carboxytriazolomethyl)methanol, benzene-1,3,5-tricarboxylic acid tris(2-azido-1,1-bisazidomethyl-ethyl)ester, adamantane 1,3,5,7-tetracarboxylic acid tetrakis(2-azido-1,1-bisazidomethyl-ethyl)ester, adamantane carboxylic acid (2-azido-1,1-bisazidomethyl-ethyl)ester, cubane 1,3,5,7-tetracarboxylic acid tetrakis(2-azido-1,1-bisazidomethyl-ethyl)ester, cubane 1,4-dicarboxylic acid bis(2-azido-1,1-bisazidomethyl-ethyl)ester. Thus, tris(4-carboxytriazolomethyl)methanol (III) was prepared by the reaction of 2-azidomethyl-2-hydroxy-1,3-diazidopropane I [A, B = N₃; X = CH₂N₃; Y = OH] (also prepared) with propiolic acid.

IT **481067-62-3P**, 2-Azidomethyl-2-hydroxy-1,3-diazidopropane
 RL: IMF (Industrial manufacture); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (preparation of **polyazido** carboxylic acid esters derived from methallyl dichloride)

RN 481067-62-3 HCAPLUS

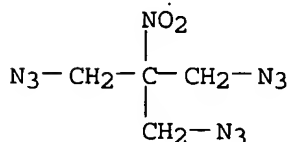
CN 2-Propanol, 1,3-diazido-2-(azidomethyl)- (9CI) (CA INDEX NAME)



IT **169564-66-3P**, 2-Azidomethyl-2-nitro-1,3-diazidopropane
481067-64-5P, 2-Azido-2-azidomethyl-1,3-diazidopropane
 RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP (Preparation)
 (preparation of **polyazido** carboxylic acid esters derived from methallyl dichloride)

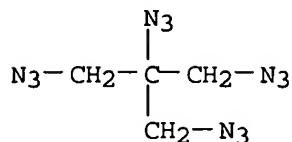
RN 169564-66-3 HCAPLUS

CN Propane, 1,3-diazido-2-(azidomethyl)-2-nitro- (9CI) (CA INDEX NAME)



RN 481067-64-5 HCAPLUS

CN Propane, 1,2,3-triazido-2-(azidomethyl)- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L20 ANSWER 2 OF 3 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:137939 HCAPLUS

DOCUMENT NUMBER: 140:357709

TITLE: Preparation of cage molecule based **polyazido** core units for dendrimer synthesis

AUTHOR(S): Dave, Paritosh R.; Duddu, Raja; Yang, Kathy; Damavarapu, Reddy; Gelber, Nathaniel; Surapaneni, Rao; Gilardi, Richard

CORPORATE SOURCE: GEO-CENTERS, INC. at ARDEC, Picatinny Arsenal, NJ, 07806-5000, USA

SOURCE: Tetrahedron Letters (2004), 45(10), 2159-2162

CODEN: TELEAY; ISSN: 0040-4039

PUBLISHER: Elsevier Science B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Core mols. based on benzene-, cubane-, and adamantane-polycarboxylates with peripheral **polyazido** substitution were prepared. The first synthesis of 1,3-diazidoacetone and its conversion to the corresponding oxime, DNPH, and 2,2-dinitro derivs. is also reported. All azido compds. should be considered dangerous and proper precautions should be taken during handling and storage of these mols.

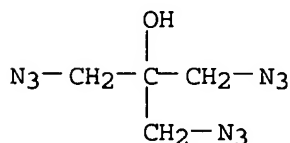
IT 481067-62-3P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(intermediate; preparation of peripheral **polyazido** and benzene and cubane and adamantane core unit cages for triazole and tetrazole containing dendrimer synthesis)

RN 481067-62-3 HCAPLUS

CN 2-Propanol, 1,3-diazido-2-(azidomethyl)- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L20 ANSWER 3 OF 3 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2002:605702 HCAPLUS

DOCUMENT NUMBER: 138:75615

TITLE: Novel **polyazido**/polynitrato compounds derived from methallyl dichloride

AUTHOR(S): Surapaneni, Rao; Damavarapu, Reddy; Duddu, Raja; Dave, Paritosh R.; Gilardi, Richard D.

CORPORATE SOURCE: US Army Armament Research Development and Engineering

SOURCE: Center, Picatinny Arsenal, NJ, 07806-5000, USA
 International Annual Conference of ICT (2002),
 33rd(Energetic Materials), 147/1-147/5
 CODEN: IACIEQ; ISSN: 0722-4087

PUBLISHER: Fraunhofer-Institut fuer Chemische Technologie

DOCUMENT TYPE: Journal

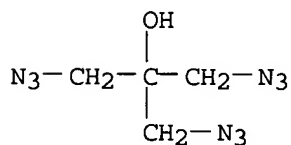
LANGUAGE: English

AB Several polynitrato and **polyazido** compds., derived from a lower homolog of pentaerythritol and have one less methylene unit, were synthesized in order to develop lead-free primary explosives. The compds. were derived from methallyl dichloride by such reactions as epoxidn., nucleophilic substitution, and ring-opening nitration. Nitration. These compds. are of potential interest as energetic plasticizers and their multiple functional groups can be exploited to prepare novel dendritic structures.

IT **481067-62-3P**
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (synthesis and reactions of; novel **polyazido**-polynitrato compds. derived from methallyl dichloride by epoxidn., nucleophilic substitution, and ring-opening nitration)

RN 481067-62-3 HCAPLUS

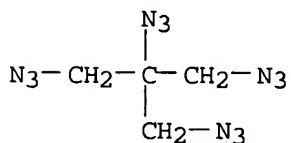
CN 2-Propanol, 1,3-diazido-2-(azidomethyl)- (9CI) (CA INDEX NAME)



IT **481067-64-5P**
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (synthesis of; novel **polyazido**-polynitrato compds. derived from methallyl dichloride by epoxidn., nucleophilic substitution, and ring-opening nitration)

RN 481067-64-5 HCAPLUS

CN Propane, 1,2,3-triazido-2-(azidomethyl)- (9CI) (CA INDEX NAME)



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L16 ANSWER 1 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN

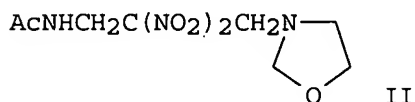
ACCESSION NUMBER: 2002:101293 HCAPLUS

DOCUMENT NUMBER: 136:118216

TITLE: Alcohol nitrates containing amide, dinitromethylene and nitroamine groups, method of preparing them, 3-[(acylamino)dinitroalkyl]oxazolidines and 3-[(acylamino)dinitroalkyl]tetrahydrooxazines, and

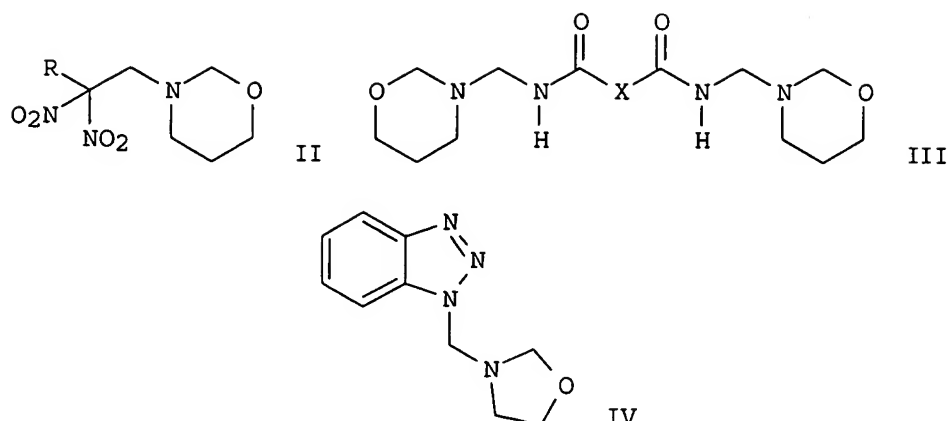
method of preparing them
 INVENTOR(S): Korepin, A. G.; Galkin, P. V.; Perepelkina, E. K.;
 Glushakova, N. M.; Eremenko, L. T.; Eremenko, I. L.
 PATENT ASSIGNEE(S): Institut Khimicheskoi Fiziki v Chernogolovke RAN,
 Russia
 SOURCE: Russ., No pp. given
 CODEN: RUXXE7
 DOCUMENT TYPE: Patent
 LANGUAGE: Russian
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
RU 2146243	C1	20000310	RU 1998-107605	19980422 <--
PRIORITY APPLN. INFO.: GI			RU 1998-107605	19980422



AB R₁CONR₂(CH₂)_nC(NO₂)₂CH₂N(NO₂)(CH₂)_mONO₂ (I; R₁ = Me, 3-nitrophenyl; R₂ = H, CH₂OH; n = 1, 2; m = 2, 3) were prepared by nitration of 3-[(acylamino)dinitroalkyl]oxazolidines and 3-[(acylamino)dinitroalkyl]tetrahydrooxazines. Prepns. of the oxazolidines and tetrahydrooxazines were also described. Thus, I (R₁ = Me, R₂ = CH₂OH, n = 1, m = 2) was prepared by treatment of oxazolidine II with 90-100% HNO₃ at 10° for 2 h; II was prepared by reaction of AcNHCH₂CH(NO₂)₂ with 2-aminoethanol and 30% formalin. The cardioprotectant activity of 3 tested I in mice was comparable to that of N-(2-nitroxyethyl)nicotinamide.

L16 ANSWER 2 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 2001:557548 HCAPLUS
 DOCUMENT NUMBER: 135:318467
 TITLE: N-Substituted tetrahydro-1,3-oxazines and oxazolidines
 1. A new version of the Mannich reaction involving amino alcohols
 AUTHOR(S): Korepin, A. G.; Galkin, P. V.; Glushakova, N. M.;
 Lagodzinskaya, G. V.; Loginova, M. V.; Lodygina, V.
 P.; Eremenko, L. T.
 CORPORATE SOURCE: Institute of Problems of Chemical Physics, Russian
 Academy of Sciences, Chernogolovka, 142432, Russia
 SOURCE: Russian Chemical Bulletin (Translation of Izvestiya
 Akademii Nauk, Seriya Khimicheskaya) (2001),
 50(1), 104-109
 CODEN: RCBUEY; ISSN: 1066-5285
 PUBLISHER: Kluwer Academic/Consultants Bureau
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 OTHER SOURCE(S): CASREACT 135:318467
 GI



AB Mannich reactions of amino alcs. 3-aminopropan-1-ol or 2-aminoethanol with HCHO and C-H or N-H acids gave N-substituted tetrahydro-1,3-oxazines or oxazolidines. Thus, reaction of H₂NCH₂CH₂CH₂OH (I) with HCHO and 1,1-dinitroethane or 2-bromo-2,2-dinitroethanol gave the 1,3-oxazines II (R = Me, Br). Similar reaction of I with H₂NCOCONH₂ and H₂NCOCH₂CH₂CONH₂ gave the bis(oxazinyl) diamides III (X = bond, CH₂CH₂), and reaction of H₂NCH₂CH₂OH with HCHO and benzotriazole gave the oxazolylmethylbenzotriazole IV.

REFERENCE COUNT: 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L16 ANSWER 3 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1999:661817 HCAPLUS

DOCUMENT NUMBER: 132:35450

TITLE: Synthesis of β-nitroamino derivatives of gem-dinitroalkanes

AUTHOR(S): Tartakovsky, V. A.; Ermakov, A. S.; Varfolomeeva, O. N.

CORPORATE SOURCE: N. D. Zelinsky Institute of Organic Chemistry, Russian Academy of Sciences, Moscow, 117913, Russia

SOURCE: Russian Chemical Bulletin (Translation of Izvestiya Akademii Nauk, Seriya Khimicheskaya) (1999), 48(7), 1385-1387

CODEN: RCBUEY; ISSN: 1066-5285

PUBLISHER: Consultants Bureau

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 132:35450

AB A method for the synthesis of β-nitroamino derivs. of gem-dinitroalkanes by nitration of the products of condensation of sulfamic acid derivs. with the corresponding gem-dinitroalkanes is presented.

REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L16 ANSWER 4 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1998:666542 HCAPLUS

DOCUMENT NUMBER: 130:15525

TITLE: Thermal decomposition of organic azides in propellants

AUTHOR(S): Jin, Shaohua; Li, Wen; Song, Quancai

CORPORATE SOURCE: College of Chemical Engineering and Materials, Beijing
Institute of Technology, Beijing, 100081, Peop. Rep.
China
SOURCE: Hanneng Cailiao (1998), 6(3), 123-127
CODEN: HACAFQ; ISSN: 1006-9941
PUBLISHER: Hanneng Cailiao Bianjibu
DOCUMENT TYPE: Journal
LANGUAGE: Chinese
AB The thermal decomposition of 11 compds. containing azidomethyl-gem-dinitro
groups
was studied by DTA, and the formal kinetic parameters E and A were
obtained. Comparison of the kinetic parameters of some azides with those
of trinitromethyl compds. with structures similar to the corresponding
compds. shows that E values increase due to the introduction of
azide-group. The influences of the number and position of
azidomethyl-gem-dinitro groups on the thermal decomposition kinetic parameters
of azidomethyl derivs. were also studied.

L16 ANSWER 5 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN

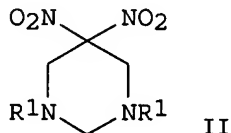
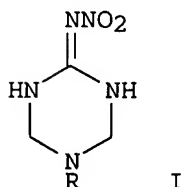
ACCESSION NUMBER: 1998:492697 HCAPLUS
DOCUMENT NUMBER: 129:202675
TITLE: Synthesis and nitration of N,N'-diacyl-2-nitro-1,1-
alkanediamines
AUTHOR(S): Terpigorev, A. N.; Germanova, G. V.; Bazanov, A. G.
CORPORATE SOURCE: Prikladnaya Khimiya Russian Scientific Center, St.
Petersburg, 197198, Russia
SOURCE: Russian Journal of Organic Chemistry (Translation of
Zhurnal Organicheskoi Khimii) (1997),
33(12), 1712-1720
CODEN: RJOCEQ; ISSN: 1070-4280
PUBLISHER: MAIK Nauka/Interperiodica Publishing
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Reactions of primary and secondary nitroalkanes with N,N'-
bis(ethoxycarbonyl)formamidine and N,N'-diacylformamidines generated in
situ from the corresponding acylamine, tri-Et orthoformate, and
1,1-dinitroethane result in formation of N,N'-diacyl-2-nitro-1,1-
alkanediamines. Methyl-N-nitroamine and 2-fluoro-2,2-dinitroethanol react
with N,N'-bis(ethoxycarbonyl)formamidine to give N2-ethoxycarbonyl-N1-
methyl-N1-nitroformamidine and 2-fluoro-2,2-dinitroethyl
N-ethoxycarbonylformimidate, resp. Nitration of N,N'-diacyl-2-nitro-1,1-
alkanediamines, depending on the conditions and the number of nitro groups,
leads to N,N'-dinitro- or N-mononitro derivs. or is accompanied by
decomposition into polynitroalkanes and Et N-nitrocarbamate.
REFERENCE COUNT: 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L16 ANSWER 6 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1998:357787 HCAPLUS
DOCUMENT NUMBER: 129:56114
TITLE: Comparison of thermal stabilities of azidomethyl
gem-dinitromethyl compounds and trinitromethyl
compounds
AUTHOR(S): Hong, Yan; Guan, Xiao-Pei; Chen, Bo-Ren
CORPORATE SOURCE: Department of Chemistry and Environmental Engineering,
Beijing Polytechnic University, Beijing, 100022, Peop.
Rep. China
SOURCE: Proceedings of the International Pyrotechnics Seminar
(1995), 21st, 312-315

CODEN: PPYSD7; ISSN: 0270-1898
 PUBLISHER: IIT Research Institute
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 AB The thermal decomposition characteristics of azidomethyl gem-dinitromethyl compds. [characterized by the -C(NO₂)₂CH₂N₃ group] and trinitromethyl compds. [the C(NO₂)₃ group] were studied by DTA, and their kinetic parameters were reported. The azidomethyl gem-dintromethyl compds. have higher thermal stabilities than the corresponding trinitromethyl compds.
 REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L16 ANSWER 7 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 1998:319646 HCAPLUS
 DOCUMENT NUMBER: 129:67758
 TITLE: Chloride-assisted nitrolysis of cyclic tertiary amines
 AUTHOR(S): Cliff, Matthew D.
 CORPORATE SOURCE: Aeronautical and Maritime Research Laboratory (AMRL)-DSTO, Salisbury, 5108, Australia
 SOURCE: Heterocycles (1998), 48(4), 657-669
 CODEN: HTCYAM; ISSN: 0385-5414
 PUBLISHER: Japan Institute of Heterocyclic Chemistry
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 GI



AB Nitramines, e.g. nitrotriazine I (R = NO₂), were prepared from tertiary amine heterocycles, e.g. alkyltriazines I (R = Me₃C, Me₂CH, cyclohexyl, benzyl, Bu, Pr) via a chloride-assisted nitrolysis [HNO₃/NH₄Cl]. The process is effective for heterocyclic systems containing a single tertiary amine moiety and gives good to excellent yields for primary, secondary and tertiary alkyl leaving groups. Heterocyclic systems containing two tertiary amines, e.g. hexahydropyrimidines II (R₁ = Me₃C, Me₂CH, cyclohexyl), are best nitrated via a tert-Bu leaving group, with other alkyl moieties leading to ring-opened species O₂NNR₁CH₂C(NO₂)₂CH₂NR₁NO upon treatment with nitrating media both in the presence and absence of chloride ions.
 REFERENCE COUNT: 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L16 ANSWER 8 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 1997:738022 HCAPLUS
 DOCUMENT NUMBER: 128:75024
 TITLE: Thermal studies of 2-azido-1,1-dinitroethyl compounds and trinitromethyl compounds
 AUTHOR(S): Yan, Hong; Guan, Xiao-Pei
 CORPORATE SOURCE: Department of Chemistry and Environmental Engineering, Beijing Polytechnic University, Beijing, 100022, Peop. Rep. China

SOURCE: Journal of Energetic Materials (1997),
15(4), 283-288
CODEN: JOEMDK; ISSN: 0737-0652
PUBLISHER: Dowden, Brodman & Devine, Inc.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The thermal decomposition characteristics of 2-azido-1,1-dinitroethyl
[-C(NO₂)₂CH₂N₃] compds. and trinitromethyl [-C(NO₂)₃] compds. have been
studied by DTA, and their kinetic parameters are also reported. The
results indicate that these 2-azido-1,1-dinitroethyl compds. have higher
thermal stability relative to the corresponding trinitromethyl compds.
REFERENCE COUNT: 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L16 ANSWER 9 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1997:415029 HCAPLUS
DOCUMENT NUMBER: 127:95011
TITLE: Synthesis of 3-azido-2,2-dinitropropyl-substituted
nitramines
AUTHOR(S): Yan, Hong; Guan, Xiao-Pei
CORPORATE SOURCE: Dep. Chem. and Environmental Engineering, Beijing
Polytechnic Univ., Beijing, 100022, Peop. Rep. China
SOURCE: Youji Huaxue (1997), 17(3), 284-288
CODEN: YCHHDX; ISSN: 0253-2786
PUBLISHER: Kexue
DOCUMENT TYPE: Journal
LANGUAGE: Chinese
AB Title azides MeN(NO₂)CH₂C(NO₂)₂CH₂N₃, [CH₂N(NO₂)CH₂C(NO₂)₂CH₂N₃]₂, and
O₂NN[CH₂C(NO₂)₂CH₂N₃]₂ were prepared from alcs. MeN(NO₂)CH₂C(NO₂)₂CH₂OH,
[CH₂N(NO₂)CH₂C(NO₂)₂CH₂OH]₂, and O₂NN[CH₂C(NO₂)₂CH₂OH]₂ via the
corresponding triflates.

L16 ANSWER 10 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1996:666292 HCAPLUS
DOCUMENT NUMBER: 125:304561
TITLE: Synthesis and characteristics of high energy density
azidonitramine additives
AUTHOR(S): Qu, Yuxiang; Chen, Boren; Yan, Hong; Dong, Shu'an
CORPORATE SOURCE: Sch. Chemical Eng. Masters. Sci., Beijing Inst.
Technol., Beijing, 100081, Peop. Rep. China
SOURCE: Beijing Ligong Daxue Xuebao (1996), 16(2),
121-128
CODEN: BLXUEV; ISSN: 1001-0645
PUBLISHER: Beijing Ligong Daxue Xuebao Bianjibu
DOCUMENT TYPE: Journal
LANGUAGE: Chinese

AB Three novel high-energy-d. gem-dinitro azidonitramines were synthesized by
introduction of an azidomethyl group into a nitroform nitramine mol. to
replace a nitro group. The synthesized gem-dinitro azidonitramines were
identified and characterized. The azidonitramines showed very high d.
(1.7-1.8 g/cm³), high nitrogen contents (.apprx.40%), satisfactory oxygen
balance (-23% to -35%), high pos. enthalpy of formation (.apprx.500
kJ/mol), and acceptable thermal stability (thermal decomposition temperature
.apprx.200°). These compds. may find applications in
high-energy-d. materials as additives.

L16 ANSWER 11 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1996:514610 HCAPLUS
DOCUMENT NUMBER: 125:172480

TITLE: Synthesis of high density azidonitramines
AUTHOR(S): Yan, Hong; Guan, Xiao-Pei; Chen, Bo-Ren
CORPORATE SOURCE: Dep. of Chemistry and Environmental Engineering,
Beijing Polytechnic Univ., Beijing, 100022, Peop. Rep.
China
SOURCE: International Annual Conference of ICT (1996
) , 27th(Energetic Materials), 135.1-135.5
CODEN: IACIEQ
PUBLISHER: Fraunhofer-Institut fuer Chemische Technologie
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Three nitramines containing the 2-azido-1,1-dinitroethyl group have been
synthesized, one of which, 1,7-diazido-2,2,4,6,6-pentanitro-4-azaheptane,
possesses a d. of 1.835 g/cm³. For these compds. the mol. structures have
been determined, and some of the properties (e.g., decomposition point) are
also reported.

L16 ANSWER 12 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1995:830797 HCAPLUS
DOCUMENT NUMBER: 123:291159
TITLE: Development of energetic additives for propellants in
China
AUTHOR(S): Ou, Yuxiang; Chen, Boren; Yan, Hong; Jia, Huiping; Li,
Jianjun; Dong, Shuan
CORPORATE SOURCE: Department Chemical Engineering, Beijing Institute
Technology, Beijing, 100081, Peop. Rep. China
SOURCE: Journal of Propulsion and Power (1995),
11(4), 838-47
CODEN: JPPOEL; ISSN: 0748-4658
PUBLISHER: American Institute of Aeronautics and Astronautics
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The development of energetic azide binders and plasticizers for solid
propellants in China was described, focusing on 14 azides. The reaction
routes and conditions for preparing these azides were summarized; the
performance of the azides, including d., m.p., enthalpy of formation,
thermal decomposition temperature (determined by differential scanning
calorimetry or
DTA), impact sensitivity, etc, were presented. The azides were arranged
in six categories: (1) azide polyethers (glycidyl azide polymer,
3,3-bis(azidomethyl)oxetane (BAMO) homopolymer, and BAMO-tetrahydrofuran
copolymer), (2) azidonitramines (1,5-diazido-3-nitrazapentane,
N-nitro-N-azidomethyl-gem-dinitroethylmethylethylamine, and
N,N'-bis(azidomethyl-gem-dinitroethyl)ethylenedinitramine), (3) azidonitro
compds. [2-nitro-2-methyl-1,3-diazidopropane, 2-nitro-2-azidomethyl-1,3-
diazidopropane, and 1-azido-2-(2,4,6-trinitrophenyl)ethane], (4) aliphatic
azides (1,2,4, triazidobutane and tetraazidomethylemethane), (5)
azidonitrates (pentaerythritol diazidodinitrate), and (6) oxygen
heterocyclic azides (3-azidomethyl-3-ethyloxetane and 2,2-dimethyl-5-
azidomethyl-5-nitro-1,3-dioxane).

L16 ANSWER 13 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1995:698094 HCAPLUS
DOCUMENT NUMBER: 123:339226
TITLE: Destructive nitration of polynitro carbonyl compounds.
III. Synthesis of 2,2,3,3,3-
pentanitropropylnitrobenzenes and -N-nitroaniline
AUTHOR(S): Stepanova, O. P.; Golod, E. L.

CORPORATE SOURCE: St. Peterburg. Gos. Tekhnol. Inst., Russia
SOURCE: Zhurnal Organicheskoi Khimii (1994), 30(10),
1521-3
CODEN: ZORKAE; ISSN: 0514-7492
PUBLISHER: Nauka
DOCUMENT TYPE: Journal
LANGUAGE: Russian
OTHER SOURCE(S): CASREACT 123:339226
AB RCH(NO₂)₂ [R = Ph, 3-O₂NC₆H₄, 2,4-(O₂N)₂C₆H₃] added to CH₂:CHCOME (I) in aqueous MeOH to give 70-80% RC(NO₂)₂CH₂CH₂COME (same R), but attempts to convert these to title compds. were unsuccessful. Adding RCH₂CH(NO₂)₂ [R = Ph, 4-O₂NC₆H₄, 2,4-(O₂N)₂C₆H₃] to I as above gave 40-86% RCH₂C(NO₂)₂CH₂CH₂COME (same R), which reacted with HNO₃-H₂SO₄ to give 11-19% RCH₂C(NO₂)₂C(NO₂)₃ (same R). Condensation reaction of 4-O₂NC₆H₄NHCH₂OME with HC(NO₂)₂CH₂CH₂COME in aqueous MeOH to give 37% 4-O₂NC₆H₄NHCH₂C(NO₂)₂CH₂CH₂COME, which reacted with HNO₃-H₂SO₄ to give 7% 2,4-(O₂N)₂C₆H₃N(NO₂)CH₂C(NO₂)₂C(NO₂)₃.

L16 ANSWER 14 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1994:326920 HCAPLUS
DOCUMENT NUMBER: 120:326920
TITLE: Calculations of heats of formation for nitramines and alkyl nitrates with PM3 and MM2
AUTHOR(S): Akutsu, Yoshiaki; Che, Renhao; Tamura, Masamitsu
CORPORATE SOURCE: Fac. Eng., Univ. Tokyo, Tokyo, 113, Japan
SOURCE: Journal of Energetic Materials (1993),
11(3), 195-203
CODEN: JOEMDK; ISSN: 0737-0652
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The heats of formation (ΔH_f°) for several nitramines and alkyl nitrates were calculated with the semi-empirical MO theory, PM3, and with mol. mechanics, MM2. Both methods ests. ΔH_f° accurately. By combining heats of vaporization and sublimation obtained by the additivity rule with ΔH_f° in the gas phase obtained by PM3 and MM2, ΔH_f° in the condensed phase can be estimated accurately enough for prediction of energy hazards.

L16 ANSWER 15 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1994:302695 HCAPLUS
DOCUMENT NUMBER: 120:302695
TITLE: Comparative characteristics of some experimental and computational methods of estimating impact sensitivity parameters of explosives
AUTHOR(S): Afanas'ev, German T.; Pivina, Tatyana S.; Sukhachev, Dimitril V.
CORPORATE SOURCE: Chem. Phys. Inst., Moscow, 117913, Russia
SOURCE: Propellants, Explosives, Pyrotechnics (1993), 18(6), 309-16
CODEN: PEPYD5; ISSN: 0721-3115
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Some theor. and exptl. ests. were presented for the quant. estimate of sensitivity of explosives to mech. impact, using a Logical-Structural Approach [T. Pivina (1991)] and the Quant. Structure-Property Relationship, QSPR, [T. Pivina (1992)]. These methods were successful for evaluating and predicting h50% (the impact sensitivity) and Δ_{cr} (the detonatable layer). For calcn. of the h50% parameter, the QSPR approach had advantages over that proposed in the Kamlet scheme [M. Kamlet (1976)].

L16 ANSWER 16 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1991:493082 HCAPLUS

DOCUMENT NUMBER: 115:93082

TITLE: Nitro- and fluoropolyformals. III. Copolyformals from mixtures of fluoro- and nitro- α,ω -diols

AUTHOR(S): Nock, Lori A.; Goldwasser, Judah M.; Adolph, Horst G.

CORPORATE SOURCE: Energ. Mater. Div., Nav. Surf. Warf. Cent., Silver Spring, MD, 20903-5000, USA

SOURCE: Journal of Polymer Science, Part A: Polymer Chemistry (1991), 29(8), 1133-49
CODEN: JPACEC; ISSN: 0887-624X

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Polyformals of fluoro-, nitramine-, and C-nitrodiols showed widely differing properties with respect to glass transition temperature (T_g), melting transition, and solubility. Polymers with desirable combinations of these properties, e.g., low T_g , high nitro content, and good solubility in polar solvents, were expected to result from acid-promoted copolycondensation of appropriate mixts. of diols with HCHO. A series of such condensations were carried out and the polymers obtained from binary mixts. of fluoro- and nitrodiols, different nitrodiols, and fluoro- or nitrodiols and carboranediols, were characterized by gel-permeation chromatog., $^1\text{H-NMR}$, and DSC anal.

L16 ANSWER 17 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1991:46054 HCAPLUS

DOCUMENT NUMBER: 114:46054

TITLE: Block copolymers of formaldehyde and 1,2-bis(2-hydroxyethyl)-1,2-dicarbadodecaborane and polynitroalkyl diols

INVENTOR(S): Adolph, Horst G.; Nock, Lori A.

PATENT ASSIGNEE(S): United States Dept. of the Navy, USA

SOURCE: Statutory Invent. Regist., 4 pp.

CODEN: SRXXEV

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 786	H1	19900605	US 1989-389239	19890802 <--
PRIORITY APPLN. INFO.:			US 1989-389239	19890802

AB A dihydroxy-terminated block copolymer useful as a binder for propellants is prepared from HCHO and a diol. mixture comprising ≤ 50 mol% 1,2-bis(2-hydroxyethyl)-1,2-dicarbadodecaborane (12) (I) with a nitrodiol (or their mixts.). The nitrodiols comprise $(\text{HOCH}_2\text{CH}_2)_2\text{NNO}_2$, $\text{HOCH}_2\text{CH}_2\text{N}(\text{NO}_2)\text{CH}_2\text{C}(\text{NO}_2)_2\text{CH}_2\text{CH}_2\text{OH}$, $\text{HOCH}_2\text{CH}_2\text{N}(\text{NO}_2)\text{CH}_2\text{CH}_2\text{N}(\text{NO}_2)\text{CH}_2\text{CH}_2\text{OH}$, and such compds., and comprises the remainder of the diol mixture than I. Thus, 2.74 g $\text{HOCH}_2\text{CH}_2\text{N}(\text{NO}_2)\text{CH}_2\text{C}(\text{NO}_2)_2\text{CH}_2\text{OCH}_2\text{OCH}_2\text{C}(\text{NO}_2)_2\text{CH}_2\text{N}(\text{NO}_2)\text{CH}_2\text{CH}_2\text{OH}$ and 0.140 g 1,2-bis(2-hydroxyethyl)-1,2-dicarbadodecaborane (12) dissolved in 3 mL sulfolane by warming, was cooled to room temperature Trioxane (0.16 g) was

added followed by dropwise addition of $\text{BF}_3 \cdot \text{Et}_2\text{O}$. Stirring 15 h at 20° , adding 15 mL CH_2Cl_2 , stirring with 20 mL H_2O and 0.5 mL 30% H_2O_2 for 3 h, separating the organic phase, stirring with 20 mL 1% aqueous KOH containing

0.25 mL 30% H₂O₂, separating the organic phase, evaporating CH₂Cl₂, and triturating with 25-mL portions of H₂O at 35-40° until no sulfolane was detected by NMR gave polymer, which was redissolved in CH₂Cl₂, and the solution stirred with silica gel overnight, filtered, and evaporated to give

2.2

g (80%) glassy polymer with number-average mol. weight 2160.

L16 ANSWER 18 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1991:46053 HCAPLUS

DOCUMENT NUMBER: 114:46053

TITLE: Block copolymers of 1,2-bis(2-hydroxyethyl)-1,2-dicarbadodecaborane(12) and polyfluoroalkyl diols and formaldehyde

INVENTOR(S): Adolph, Horst G.; Nock, Lori A.

PATENT ASSIGNEE(S): United States Dept. of the Navy, USA

SOURCE: Statutory Invent. Regist., 4 pp.

CODEN: SRXXEV

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 784	H1	19900605	US 1989-389217	19890802 <--
PRIORITY APPLN. INFO.:			US 1989-389217	19890802

AB A dihydroxy-terminated copolyformal formed from HCHO and a diol comonomer mixture of <50 mol% 1,2-bis(2-hydroxyethyl)-1,2-dicarbadodecaborane and balance mixture of fluorodiol/nitrodil mixture wherein the nitrodil comprises <50 mol% (based on fluorodiol/nitrodil mixture). The fluoroalkyl diol prepolymers with carborane groups are a polymeric binder for propellants, the carborane groups will not migrate or crystallize out, and the burning rates of propellant composites are controllable by varying the carborane content.

L16 ANSWER 19 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1990:516127 HCAPLUS

DOCUMENT NUMBER: 113:116127

TITLE: Hydroxy-terminated polyformals of fluorodiol with nitrodil

INVENTOR(S): Nock, Lori A.; Adolph, Horst G.

PATENT ASSIGNEE(S): United States Dept. of the Navy, USA

SOURCE: Statutory Invent. Regist., 5 pp.

CODEN: SRXXEV

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 730	H1	19900206	US 1989-389211	19890802 <--
PRIORITY APPLN. INFO.:			US 1989-389211	19890802

AB The title polymers, with low glass temps. and useful as binders for explosives and propellants, are prepared from HCHO, fluorinated diols, and nitrodil. Thus, BF₃-catalyzed polymerization of HOCH₂(CF₂)₄CH₂OH.6.01, HOCH₂CH₂N(NO₂)CH₂CH₂N(NO₂)CH₂CH₂OH 5.46, and s-trioxane 1.38 g in sulfolane at room temperature overnight gave a polyacetal with number-average mol. weight

2080, weight-average mol. weight 3300, and OH equivalent weight 113 by ¹⁹F-NMR.

L16 ANSWER 20 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1988:97345 HCAPLUS
DOCUMENT NUMBER: 108:97345
TITLE: 1,9-difluoro-1,1,3,5,7,9,9-octanitro-3,7-diazanonane
and method of preparation as energetic oxidizer
INVENTOR(S): Frankel, Milton B.; Witucki, Edward F.
PATENT ASSIGNEE(S): Rockwell International Corp., USA
SOURCE: U.S., 3 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 4701557	A	19871020	US 1982-407198	19820811 <--
PRIORITY APPLN. INFO.:			US 1982-407198	19820811

OTHER SOURCE(S): CASREACT 108:97345

AB 1,9-Difluoro-1,1,3,5,7,9,9-octanitro-3,7-diazanonane (I) is synthesized as a energetic oxidizer for propellants by reacting 2-fluoro-2,2-dinitroethylamine with 2,2-dinitro-1,3-propandiol and treating the resulting white solid with HNO₃ and H₂SO₄. I was obtained in 48% yield and had m.p. 139-140° after recrystn. from ClCH₂CH₂Cl. I has impact sensitivity 44 in.-lb, endotherm onset 136° and peak 138°, and exotherm onset 160° and peak 204°, and is a viable replacement for HMX or NH₄ClO₄.

L16 ANSWER 21 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1987:478355 HCAPLUS
DOCUMENT NUMBER: 107:78355
TITLE: Synthesis of polyformals from nitro- and fluorodiols.
Substituent and chain-length effects
AUTHOR(S): Adolph, Horst G.; Goldwasser, Judah M.; Koppes, William M.
CORPORATE SOURCE: Energetic Mater. Div., Naval Surf. Weap. Cent., Silver Spring, MD, 20903-5000, USA
SOURCE: Journal of Polymer Science, Part A: Polymer Chemistry (1987), 25(3), 805-22
CODEN: JPACEC; ISSN: 0887-624X
DOCUMENT TYPE: Journal
LANGUAGE: English

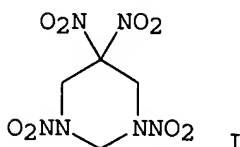
AB A series of primary and secondary diols carrying nitroalkyl, NO₂, and F substituents was reacted with HCHO under conditions of acid catalysis. Short-chain primary diols gave cyclic formals while predominantly linear polymers were obtained beginning with 1,5-pentanediols and 1,6-hexanediols, depending upon the nature of the substituents. No polymers were formed from secondary diols with 1-nitroalkyl substituents. The effect of monomer structure on polymer formation was discussed. The polymers were characterized by gel permeation chromatog. and end-group anal.

L16 ANSWER 22 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1986:88995 HCAPLUS
DOCUMENT NUMBER: 104:88995
TITLE: Synthesis of novel polynitrodiols
AUTHOR(S): Koppes, William M.; Sitzmann, Michael E.; Adolph,

CORPORATE SOURCE: Horst G.
Energetic Mater. Div., Nav. Surface Weapons Cent.,
Silver Spring, MD, 20903-5000, USA
SOURCE: Journal of Chemical and Engineering Data (1986
, 31(1), 119-23
CODEN: JCEAAX; ISSN: 0021-9568
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 104:88995
AB The synthesis of a number of polynitroalkanediols of widely varying structure
is reported. Several of the synthesis methods described constitute novel
variations or improvements of known reactions: some polynitroaliph.
carboxylic acids undergo the Schmidt reaction only in triflic acid as
reaction medium; 3-nitropropyl acetate [21461-49-4] was advantageously
prepared by a variation of the Kornblum reaction with aqueous Me₂SO as solvent;
3,3-dinitropropanol was obtained by an intramol. variant of the alkaline
nitration method.

L16 ANSWER 23 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1983:522404 HCAPLUS
DOCUMENT NUMBER: 99:122404
TITLE: Synthesis of 1,3,5,5-tetranitrohexahydropyrimidine
AUTHOR(S): Levins, D. A.; Bedford, C. D.; Staats, S. J.
CORPORATE SOURCE: SRI Int., Menlo Park, CA, 94025, USA
SOURCE: Propellants, Explosives, Pyrotechnics (1983
, 8(3), 74-6
CODEN: PEPYD5; ISSN: 0721-3115
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 99:122404
GI



AB The title compound I was prepared in 37% yield by nitration of
1,3-diisopropyl-5,5-dinitrohexahydropyrimidine, prepared in 88% yield by
cycloaddn. of Me₂CHNH₂ to HOCH₂C(NO₂)₂CH₂OH, with 95% HNO₃ 1.5 h at
0° and allowing the mixture to stand overnight at room temperature Addnl.
obtained were 24% Me₂CHN(NO)CH₂C(NO₂)₂CH₂N(NO)CHMe₂ and
Me₂CHN(NO₂)CH₂CH(NO₂)₂.

L16 ANSWER 24 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1979:559853 HCAPLUS
DOCUMENT NUMBER: 91:159853
TITLE: The relationship of impact sensitivity with structure
of organic high explosives. I. Polynitroaliphatic
explosives
AUTHOR(S): Kamlet, Mortimer J.
CORPORATE SOURCE: White Oak Lab., Nav. Surf. Weapons Cent., Silver
Spring, MD, 20910, USA

SOURCE: Off. Nav. Res., [Tech. Rep.] ACR (U. S.) (1976
), ACR-221, Proc. Symp. (Int.) Detonation, 6th, 312-22
CODEN: OFNRAZ; ISSN: 0500-2001

DOCUMENT TYPE: Report
LANGUAGE: English

AB Impact sensitivities of organic high explosives are primarily functions of their thermal decomposition rates at the temps. generated under the impact hammer. For classes of explosives with similar decomposition mechanisms, there appear to be rough linear relationships (sensitivity-structure trends) between logarithmic 50% impact heights and values of OB100, a measure of oxidant balance. Polynitroaliph. explosives containing at least one N-nitro linkage are more sensitive as a class than nitroaliph. explosives containing only C-nitro linkages.

L16 ANSWER 25 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1979:103135 HCAPLUS

DOCUMENT NUMBER: 90:103135

TITLE: Evaluation of enthalpies of atomization in CNDO/2 calculations

AUTHOR(S): Belik, A V.; Shlyapochnikov, V. A.

CORPORATE SOURCE: Inst. Org. Khim. im. Zelinskogo, Moscow, USSR

SOURCE: Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya (1977), (12), 2795-8
CODEN: IASKA6; ISSN: 0002-3353

DOCUMENT TYPE: Journal

LANGUAGE: Russian

AB Coeffs. (K) relating resonance energies of bonds to the enthalpies of atomization (ΔH) were determined for several bond types by comparing the calculated and exptl. ΔH for numerous small mols. The K values were then used to calculate ΔH for several nitro compds. The calculated values agreed satisfactorily with exptl. data.

L16 ANSWER 26 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1977:170597 HCAPLUS

DOCUMENT NUMBER: 86:170597

TITLE: Steric effects in molecules of mono- and polynitroalkanes

AUTHOR(S): Pivina, T. S.; Gritsaev, E. I.; Smirnov, B. B.; Shlyapochnikov, V. A.; Novikov, S. S.

CORPORATE SOURCE: Inst. Org. Khim. im. Zelinskogo, Moscow, USSR

SOURCE: Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya (1977), (1), 182-4
CODEN: IASKA6; ISSN: 0002-3353

DOCUMENT TYPE: Journal

LANGUAGE: Russian

AB Equilibrium NO₂-group angles, strain energies, and heats of atomization were calculated for C₁-C₄ alkanes containing 1-8 NO₂ groups. A steric parameter was calculated which could predict the stability of the mol. The steric effects arising from the NO₂ groups increased nonlinearly with the number of NO₂ groups and with the length of the C chain.

L16 ANSWER 27 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1973:505216 HCAPLUS

DOCUMENT NUMBER: 79:105216

TITLE: Cyclic derivatives of 3-fluoro-3,3-dinitro-1-aminopropane

AUTHOR(S): Sviridov, S. I.; Gafurov, R. G.; Korepin, A. G.; Eremenko, L. T.

CORPORATE SOURCE: Inst. Khim. Fiz., Moscow, USSR

SOURCE: Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya (1973), (6), 1369-71
CODEN: IASKA6; ISSN: 0002-3353

DOCUMENT TYPE: Journal

LANGUAGE: Russian

GI For diagram(s), see printed CA Issue.

AB $\text{FC}(\text{NO}_2)_2\text{CH}_2\text{CH}_2\text{NH}_2$ (RNH_2 in following) and formalin gave I which with $\text{Ac}_2\text{O}-\text{HNO}_3$ gave $\text{RN}(\text{NO}_2)\text{CH}_2\text{OAc}$. RNH_2 and 9% formalin with $\text{KHC}(\text{NO}_2)_2$ in aqueous EtOH at pH 4-5 gave II, which with HNO_3 gave $\text{RN}(\text{NO}_2)\text{CH}_2\text{C}(\text{NO}_2)_2$, also formed from III (prepared from RNH_2 and formalin with $\text{KHC}(\text{NO}_2)_2$ in aqueous medium at pH 5.5). II and III did not yield any unsym. ring opening products in reactions with HNO_3 .

L16 ANSWER 28 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1973:504674 HCAPLUS

DOCUMENT NUMBER: 79:104674

TITLE: New derivatives of 3,3,3-trinitro-1-aminopropane and their nitrolysis

AUTHOR(S): Gafurov, R. G.; Sviridov, S. I.; Eremenko, L. T.

CORPORATE SOURCE: Inst. Khim. Fiz., Moscow, USSR

SOURCE: Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya (1973), (6), 1366-9
CODEN: IASKA6; ISSN: 0002-3353

DOCUMENT TYPE: Journal

LANGUAGE: Russian

GI For diagram(s), see printed CA Issue.

AB $\text{KCH}(\text{NO}_2)_2$ and 30% formalin in aqueous EtOH at pH 6 were slowly treated with $\text{RNH}_2\cdot\text{HCl}$ $\text{R} = (\text{O}_2\text{N})_3\text{CCH}_2\text{CH}_2$ to form I. In aqueous system at pH 5.5 the product was II while at pH 7.5-8 it was $\text{RNHCH}_2\text{C}(\text{NO}_2)_2\text{CH}_2\text{N}+\text{HRCH}_2\text{C}(\text{NO}_2)_2$ (III). I and HNO_3 gave $\text{RN}(\text{NO}_2)\text{CH}_2\text{CH}(\text{NO}_2)_2$ which brominated to $\text{RN}(\text{NO}_2)\text{CH}_2\text{CBr}(\text{NO}_2)_2$, also formed from II and III by treatment with Br_2 , followed by $\text{HNO}_3-\text{H}_2\text{SO}_4$. III and mixed acid gave $\text{RN}(\text{NO}_2)\text{CH}_2\text{C}(\text{NO}_2)_2\text{CH}_2\text{NRCH}_2\text{CH}(\text{NO}_2)_2$, which brominated to $\text{RN}(\text{NO}_2)\text{CH}_2\text{C}(\text{NO}_2)_2\text{CH}_2\text{NRCH}_2\text{CBr}(\text{NO}_2)_2$, while mixed acid at 90° gave $\text{RN}(\text{NO}_2)\text{CH}_2\text{C}(\text{NO}_2)_2$. This also formed from I or II with mixed acid at elevated temperature

L16 ANSWER 29 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1973:404971 HCAPLUS

DOCUMENT NUMBER: 79:4971

TITLE: Amidomethylation of alkali salts of polynitroalkanes

AUTHOR(S): Ivanov, P. A.; Popov, E. I.; Selivanov, V. F.; Gidasov, B. V.

CORPORATE SOURCE: Leningr. Tekhnol. Inst. im. Lensoveta, Leningrad, USSR

SOURCE: Zhurnal Organicheskoi Khimii (1972), 8(11), 2371-3
CODEN: ZORKAE; ISSN: 0514-7492

DOCUMENT TYPE: Journal

LANGUAGE: Russian

AB Alkylation of K or Na salts of $\text{RCH}(\text{NO}_2)_2$ [$\text{R} = \text{H}$, cyano, $\text{Me}(\text{O}_2\text{N})\text{NCH}_2$, $\text{m-O}_2\text{NC}_6\text{H}_4$, MeOCH_2 , NO_2 , Br] with BzNHCH_2Cl in anhydrous Me_2CO gave 80-96% $\text{BzNHCH}_2\text{C}(\text{NO}_2)_2\text{R}$.

L16 ANSWER 30 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1973:123728 HCAPLUS

DOCUMENT NUMBER: 78:123728

TITLE: Principles of the thermal decomposition of β -polynitroalkylamines and amides

AUTHOR(S): Selivanov, V. F.; Vlasenko, I. V.; Stepanov, R. S.;

Gidaspov, B. V.
 CORPORATE SOURCE: Leningrad, USSR
 SOURCE: Gorenje Vzryv, Mater. Vses. Simp., 3rd (1972
), Meeting Date 1971, 789-93. Editor(s): Stesik, L. N. "Nauka": Moscow,
 USSR.

CODEN: 26JOAP

DOCUMENT TYPE: Conference

LANGUAGE: Russian

AB Rate consts. and activation parameters were determined for the thermal decomposition

of (1) $\text{RC}_6\text{H}_4\text{NHCH}_2\text{CMe}(\text{NO}_2)_2$ ($\text{R} = \text{H}$, o - and p -Me, o - and p -Cl, m - and p - NO_2)
 (2) $\text{RC}_6\text{H}_4\text{NHCH}_2\text{C}(\text{NO}_2)_2$ - $\text{CH}_2\text{CMe}(\text{NO}_2)_2$ ($\text{R} = \text{H}$, p -Me, p -Cl, m - and p - NO_2), (3)
 $\text{AcN- HCHRC}(\text{NO}_2)_3$ [$\text{R} = \text{H}$, alkyl, Ph, PhCH_2 , $\text{CH}_2\text{CH}_2\text{C}(\text{NO}_2)_3$, CH_2Cl], and (4)
 $\text{BzNHCH}_2\text{C}(\text{NO}_2)_2\text{C}(\text{N}_2)_2\text{R}$ ($\text{R} = \text{CN}$, NO_2 , ClH , $\text{CH}_2\text{CH}_2\text{CO}_2\text{Me}$, Me, Et) in di-Bu
 phthalate or trinitrotoluene. The 4 types of compds. decomposed by the same
 mechanism, the 1st and rate-determining step of which was heterolytic cleavage
 of the CH-NH bond to form a carbonium-immonium cation and an anion of a
 polynitro compound

L16 ANSWER 31 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1967:453645 HCAPLUS

DOCUMENT NUMBER: 67:53645

TITLE: Preparation of nitro aza diisocyanates suitable as explosives

INVENTOR(S): Vanneman, Clinton R.; Klager, Karl

PATENT ASSIGNEE(S): Aerojet-General Corp.

SOURCE: Ger., 3 pp.

CODEN: GWXXAW

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 1238901		19670420	DE	19601201 <--

AB An outline of the synthesis of the title compds. (I) is given. Nitro aza dicarboxylic acids (II) were prepared either by hydrolysis of the corresponding nitro aza dinitriles or by condensation of a nitro diol with an amino ester, followed by HNO_3 oxidation. The various II were converted to the corresponding acid chlorides (III) with SOCl_2 . Treatment of III with NaN_3 , KN_3 , or $\text{Mg}(\text{N}_3)_2$ at 0 - 5° gave the corresponding azides, which were converted to I by a Curtius rearrangement. Thus, a solution of 11 g. 4,7,7,10-tetranitro-4,10-diaza-1,13-tridecanedicarbonyl chloride in 50 ml. Me_2CO was added dropwise to a solution of 4.6 g. NaN_3 in 15 ml. H_2O (kept at 5°). The mixture was stirred 1 hr. at 0° and filtered. The residue was washed with H_2O and $(\text{CH}_2\text{Cl}_2)_2$ and dried in vacuo to give 3,6,6,9-tetranitro-3,9-diazaundecamethylene diisocyanate, m. 88 - 90° (CHCl_3).

L16 ANSWER 32 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1963:461451 HCAPLUS

DOCUMENT NUMBER: 59:61451

ORIGINAL REFERENCE NO.: 59:11236b-g

TITLE: Synthesis and reactions of trinitromethyl compounds

AUTHOR(S): Frankel, M. B.

CORPORATE SOURCE: Stanford Res. Inst., Menlo Park, CA

SOURCE: Tetrahedron (1963), 19(Suppl. 1), 213-17

CODEN: TETRAB; ISSN: 0040-4020

DOCUMENT TYPE: Journal
 LANGUAGE: Unavailable

AB A systematic study of the synthesis of trinitromethyl compds. from $\text{HC}(\text{NO}_2)_3$ and $(\text{O}_2\text{N})_3\text{CCH}_2\text{OH}$ (I) is summarized. $\text{HC}(\text{NO}_2)_3$ adds readily in a Michael type of addition to α,β -unsatd. compds. such as $\text{H}_2\text{C}:\text{CHCO}_2\text{H}$ and its esters, $\text{HOCH}_2\text{COCH}:\text{CH}_2$, and $\text{O}_2\text{NCH}:\text{CH}_2$ to yield 83% $(\text{NO}_2)_3\text{CCH}_2\text{CH}_2\text{CO}_2\text{H}$, m. 61° ; 64% $(\text{NO}_2)_3\text{CCH}_2\text{CH}_2\text{CO}_2\text{CH}:\text{CH}_2$, b 6 $85-9^\circ$, n $_{25\text{D}}$ 1.4707; 71% $(\text{NO}_2)_3\text{CCH}_2\text{CH}_2\text{CO}_2\text{CH}_2-\text{CH}:\text{CH}_2$, b 0.3 $71-2^\circ$, n $_{25\text{D}}$ 1.4676; 74% $(\text{NO}_2)_3\text{CCH}_2\text{CH}_2\text{CO}-\text{CH}_2\text{OH}$, m. 77° ; and 50% $(\text{NO}_2)_3\text{CCH}_2\text{CH}_2\text{NO}_2$, m. $50-1^\circ$. Of special interest was addition of $\text{HC}(\text{NO}_2)_3$ to $\text{H}_2\text{C}:\text{C}(\text{NO}_2)\text{CH}_2\text{OAc}$ (II). Condensation of MeNO_2 with HCHO in the presence of NaOH gave the acid Na salt, $\text{HOCH}_2\text{C}(:\text{NO}_2\text{Na})\text{CH}_2\text{OH}$, which was acidified and acetylated to give $\text{AcOCH}_2\text{CH}(\text{NO}_2)\text{CH}_2\text{OAc}$, and converted by vapor phase cleavage at $180^\circ/100$ mm. to II. Addition of $\text{MeCH}(\text{NO}_2)_2$ to II gave $\text{MeC}(\text{NO}_2)_2\text{CH}_2\text{CH}(\text{NO}_2)\text{CH}_2\text{C}(\text{NO}_2)_2\text{Me}$, and in similar manner, addition of $\text{HC}(\text{NO}_2)_3$ to II yielded $(\text{NO}_2)_3\text{CCH}_2\text{CH}(\text{NO}_2)\text{CH}_2\text{C}(\text{NO}_2)_3$. It was of interest to determine the various types of trinitromethyl compds. that could be prepared

from

$(\text{NO}_2)_3\text{CCH}_2\text{CH}_2\text{CO}_2\text{H}$ (III). III refluxed 4 hrs. with SOCl_2 yielded 33% $[(\text{NO}_2)_3\text{CCH}_2\text{CH}_2\text{CO}]_2\text{O}$, m. $109-10^\circ$, but 20 hrs. refluxing gave 82% $(\text{NO}_2)_3\text{CCH}_2\text{CH}_2\text{COCl}$ (IV), b 0.5 $65-6^\circ$, n $_{25\text{D}}$ 1.4835. IV treated with NaN_3 gave the azide, converted in situ to 71.2% $(\text{NO}_2)_3\text{CCH}_2\text{CH}_2\text{NCO}$ (V), b 10 $73-5^\circ$, n $_{25\text{D}}$ 1.4805. V hydrolyzed with HCl yielded 94% $(\text{NO}_2)_3\text{CCH}_2\text{CH}_2\text{NH}_2\cdot\text{HCl}$ (VI), m. $161-3^\circ$. V and VI were used for the preparation of trinitromethyl carbamates (VII) and trinitromethylamines (VIII). VII were prepared by addition of I to various isocyanates and the addition of different alcs. to V. I is considerably more acidic than ordinary alcs. and reacts less readily with isocyanates. I refluxed with an isocyanate in CHCl_3 several hrs. in the presence of a catalytic amount of ferric acetylacetonate gave essentially quant. yields of the tabulated VII. All were nitrated to the corresponding N-nitro derivs. VIII were prepared by the Mannich condensation of I with various primary amines and the reaction of VI with nitro alcs. Since nitro alcs. are demethylolated in the presence of base, the condensations were carried out by portionwise addition of an equivalent amount of base to VI and nitro alc. in H_2O with immediate

precipitation

of the tabulated VIII. All these secondary amines were nitrated to the corresponding nitramines. The reaction of $(\text{HOCH}_2)_2\text{C}(\text{NO}_2)_2$ with VI and HCHO yielded 40.8% 1,3-bis-(3,3,3-trinitropropyl)-5,5-dinitroperhydropyrimidine, m. $119-21^\circ$. Condensation of VI with HCHO gave a quant. yield of 1,3,5-tris(3,3,3-trinitropropyl)perhydro-1,3,5-triazine, m. $121-3^\circ$. Esters of I were prepared according to the procedure of Hill (CA 49, 8103f) by treating the acid chlorides with I in the presence of a catalytic amount of AlCl_3 . The esterification of 4,4,6,6,8,8-hexanitroundecanedioic acid was carried out in 100% H_2SO_4 as the ionizing solvent. The 2,2,2-trinitroethyl esters prepared are summarized (ester, % yield, and m.p. given): $\text{N}(\text{NO}_2)[\text{CH}_2\text{CO}_2\text{CH}_2\text{C}(\text{NO}_2)_3]_2$, 77.8, $160.0-60.5^\circ$; $\text{N}(\text{NO}_2)[\text{CH}_2\text{CH}_2\text{CO}_2\text{CH}_2\text{C}(\text{NO}_2)_3]_2$, 35.9, $110-11^\circ$; $[\text{CH}_2\text{N}(\text{NO}_2)\text{CH}_2\text{CO}_2\text{CH}_2\text{C}(\text{NO}_2)_3]_2$, 5.6, $195-7^\circ$; $[\text{CH}_2\text{N}(\text{NO}_2)\text{CH}_2\text{CH}_2\text{CO}_2\text{CH}_2\text{C}(\text{NO}_2)_3]_2$ 85.5, $126-8^\circ$; $\text{MeC}(\text{NO}_2)_2\text{CH}_2\text{N}(\text{NO}_2)\text{CH}_2\text{CO}_2\text{CH}_2\text{C}(\text{NO}_2)_3$, 50.3, $121.0-1.5^\circ$; $\text{C}(\text{NO}_2)_2[\text{CH}_2\text{CH}_2\text{CO}_2\text{CH}_2\text{C}(\text{NO}_2)_3]_2$, 47.0, $170-1^\circ$; $\text{C}(\text{NO}_2)_2[\text{CH}_2\text{C}(\text{NO}_2)_2\text{CH}_2\text{CH}_2\text{CO}_2\text{CH}_2\text{C}(\text{NO}_2)_3]_2$, 87.8, $117-18^\circ$.

L16 ANSWER 33 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1963:461424 HCAPLUS

DOCUMENT NUMBER: 59:61424

ORIGINAL REFERENCE NO.: 59:11228c-f

TITLE: Preparation of polynitro compounds by the Michael

condensation and the Mannich reaction
 AUTHOR(S): Hamel, E. E.
 CORPORATE SOURCE: Aerojet-Gen., Sacramento, CA
 SOURCE: Tetrahedron (1963), 19(Suppl. 1), 85-95
 CODEN: TETRAB; ISSN: 0040-4020
 DOCUMENT TYPE: Journal
 LANGUAGE: Unavailable

AB The Michael condensation for the preparation of polynitro compds., where the addenda contained one or more terminal NO₂ groups, proceeded smoothly at 20-50° in aqueous MeOH and required no catalyst when the nitro compound was used as its Na or K aci salt. The expected product was obtained in all but two of the systems studied. Reaction of 2 moles H₂C:CHCO₂Me with O₂NC(: NO₂K)CH₂C(: NO₂K)NO₂ gave only the monoadduct O₂NC(: NO₂K)CH₂C(O₂N)2CH₂CH₂CO₂Me. RN[CH₂C(NO₂): NO₂K]2-(I, R = H) (II) (1 mole) and 2 moles H₂C:CHCO₂Me at 20-30° in aqueous MeOH gave 81% (O₂N)2C(CH₂CH₂CO₂Me)₂, instead of the expected adduct (Klager, CA 53, 6060c). Similar behavior was noted with I (R = NO₂, CN). Apparently II underwent a reverse Mannich reaction to give the anion, HOCH₂C(NO₂): NO₂-(III). Gradual acidification of the K salt of III with dilute H₂SO₄ to pH 4 gave KO₂N:C(NO₂)CH₂C(NO₂):NO₂K, apparently via formation of H₂C:C(NO₂)₂ as an intermediate. The Mannich reaction of polynitro-1,5-pentanediols with amines gave cyclic derivs., whereas similar reactions of 2,2-dinitro-1,3-propanediol gave the linear products in some instances and cyclic derivs. in others; the latter appear to result from in situ formation of the anion of HOCH₂C(NO₂)2CH₂CH(NO₂)₂.

L16 ANSWER 34 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1962:455645 HCAPLUS
 DOCUMENT NUMBER: 57:55645
 ORIGINAL REFERENCE NO.: 57:10992i,10993a-f
 TITLE: Polynitro aliphatic nitramines
 AUTHOR(S): Frankel, Milton B.; Klager, Karl
 CORPORATE SOURCE: Aerojet-Gen. Corp., Azusa, CA
 SOURCE: Journal of Chemical and Engineering Data (1962), 7, 412-13
 CODEN: JCEAAX; ISSN: 0021-9568
 DOCUMENT TYPE: Journal
 LANGUAGE: Unavailable

AB The Mannich condensation of 2,2-dinitro-1-alkanols with NH₃ was extended to include polynitro aliphatic primary amines and diamines, which were prepared by acid hydrolysis of the corresponding isocyanates. Nitration of the secondary amines thus obtained gave the corresponding nitramines, which were sensitive to impact. To 23.1 g. (O₂N)3CCH₂CH₂NH₂.HCl (I.HCl), 18.1 g. (O₂N)3CCH₂OH (II), and 150 mL. H₂O was added dropwise 88 mL. 1.136N NaOH at room temperature with stirring and the mixture cooled in an ice bath to give 28.2 g. (O₂N)3CCH₂NHCH₂CH₂C(NO₂)₃ (IIa), m. 64-5° (CHCl₃). The following Mannich condensation products were prepared similarly (alc., amine, product, % yield, m.p. given): II, MeC(NO₂)2CH₂NH₂ (III), MeC(NO₂)2CH₂CH₂NHCH₂C(NO₂)₃, 71.7, oil; MeC(NO₂)2CH₂OH (IV), I, MeC(NO₂)2CH₂NHCH₂CH₂C(NO₂)₃, quant., oil; (O₂N)2C(CH₂OH)₂ (V), III, (O₂N)2C[CH₂NHCH₂CH₂C(NO₂)2Me]₂, 74.2, 95-110°; V, I, (O₂N)2C[CH₂NHCH₂CH₂C(NO₂)3]₂, 83.8, 70-80°; II, CH₂(NH₂)₂, CH₂[NHCH₂C(NO₂)3]₂, 93.1, 100.5°; IV, (O₂N)2C(CH₂CH₂NH₂)₂ (VI), (O₂N)2C[CH₂CH₂NHCH₂C(NO₂)2Me]₂, quant., oil; II, VI, (O₂N)2C[CH₂CH₂NHCH₂C(NO₂)3]₂, 65.7, 93-5°; II, O₂NN(CH₂CH₂NH₂)₃, O₂NN[CH₂CH₂NHCH₂C(NO₂)3]₂, 33.1, gum; II, [H₂NCH₂CH₂N(NO₂)CH₂]₂, [(O₂N)3CCH₂NHCH₂CH₂N(NO₂)CH₂]₂, quant., 100-5°; II, O₂NN[CH₂C(NO₂)2CH₂CH₂NH₂]₂, O₂NN[CH₂C(NO₂)2CH₂CH₂NHCH₂C(NO₂)3]₂, 31.3, 90-100°. Com. absolute HNO₃ (150 mL.) cooled in an ice bath, treated

dropwise with 150 mL. Ac₂O at below 5-10° followed by 28.2 g. IIa, the mixture warmed to 30° to effect solution (in some cases the amine dissolved at 5-10° and it was unnecessary to raise the temperature), and the solution poured on ice gave 27.0 g. (O₂N)₃CCH₂N(NO₂)CH₂CH₂C(NO₂)₃, m. 144-5° (CHCl₃). To 53.0 g. VI.2HCl, 60 g. IV, and 400 mL. H₂O was added dropwise 82 mL. 4.877N NaOH, the aqueous layer decanted from a solid which separated, the solid dried, treated with 200 mL. concentrated H₂SO₄-300 mL.

tech. 100% HNO₃, the mixture warmed 20 min. at 50-5°, cooled, and the precipitate (80 g.) filtered off (an addnl. 6.0 g. was obtained by pouring the filtrate on ice) gave (O₂N)₂C[CH₂CH₂N(NO₂)CH₂C(NO₂)₂Me]₂, m. 206-8° (Me₂CO). The following compds. were prepared by these procedures (product, % yield, m.p., recrystn. solvent given): MeC(NO₂)₂CH₂CH₂N(NO₂)CH₂C(NO₂)₃, 38.3, 105-7°, CHCl₃; MeC(NO₂)₂CH₂N(NO₂)CH₂CH₂C(NO₂)₃, 63.3, 109-9.5°, CCl₄; (O₂N)₂C[CH₂N(NO₂)CH₂CH₂C(NO₂)₂Me]₂, 61.2, 137-9°, (ClCH₂)₂ (VII); (O₂N)₂C[CH₂N(NO₂)CH₂CH₂C(NO₂)₂Me]₂, 67.2, 124-5°, VII; (O₂N)₂C[CH₂N(NO₂)CH₂CH₂C(NO₂)₃]₂, 50.0, 157-9°, MeOH-H₂O, CH₂[N(NO₂)CH₂C(NO₂)₃]₂, 20.0, 84-5°, cyclohexane; (O₂N)₂C[CH₂CH₂N(NO₂)CH₂C(NO₂)₃]₂, 69.8, 170-5°, 100% HNO₃; O₂NN[CH₂CH₂N(NO₂)CH₂C(NO₂)₃]₂, 26.8, 158-9°, 70% HNO₃; [(O₂N)₃CCH₂N(NO₂)CH₂CH₂N(NO₂)CH₂]₂, 45.1, 166-7°, 70% HNO₃; O₂NN[CH₂C(NO₂)₂CH₂CH₂N(NO₂)CH₂C(NO₂)₃]₂, 40.0, 186-7°, MeNO₂-CCl₄.

L16 ANSWER 35 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1962:442520 HCAPLUS

DOCUMENT NUMBER: 57:42520

ORIGINAL REFERENCE NO.: 57:8432e-i,8433a-b

TITLE: Dinitroacetoneitrile. III. Dinitroacetamide and its derivatives

AUTHOR(S): Parker, Charles O.

CORPORATE SOURCE: Rohm & Haas Co., Huntsville, AL

SOURCE: Tetrahedron (1962), 17, 105-8

CODEN: TETRAB; ISSN: 0040-4020

DOCUMENT TYPE: Journal

LANGUAGE: Unavailable

AB Manipulation of preparative quantities of (O₂N)₂CHCONH₂ (I) or its salts was troublesome due to unfavorable solubility properties and relatively facile decomposition to (O₂N)₂CH₂ derivs. Anhydrous Et₂O (200 ml.) stirred at -5° (ice-Me₂CHOH bath) with passage of dry HCl under anhydrous conditions, the saturated solution treated rapidly with 15.3 g. dried NaC(O₂N)₂CN in 24 ml. 1:1 anhydrous MeOH-EtOAc with rise of temperature to 4-5°, the mixture kept 16 hrs. at -10° (freezing mixture in Dewar flask), filtered through Celite, the solvent removed in vacuo, and the product washed with CH₂Cl₂ yielded 76-5% I, m. 86-7°. Concentrated HCl (83 ml.) stirred at -10° with portionwise addition of NaC(NO₂)₂CN, the temperature raised to 20° in 16 hrs., filtered through Celite, and the filtrate extracted continuously with 800 ml. CH₂Cl₂ yielded 14.7% I. The filtrate from a similar run diluted with 83 ml. H₂O, extracted 3 times with 85 ml. (Me₂CH)₂O, the extract dried over anhydrous Na₂SO₄ and anhydrous MgSO₄, and the dried filtered

solution evaporated yielded 14.1% I, m. 48-67° (CH₂Cl₂). I (24.2 g.) in 20 ml. H₂O stirred with dropwise addition of 13.5 ml. formalin, kept 16 hrs. at 20° saturated with NaCl, and extracted with Et₂O yielded 39.4% H₂NCO(O₂N)₂CCH₂OH (II), m. 104-7°, v 1710, 1575 cm.⁻¹ (CF₃CO)₂O (14 g.) and 3.4 g. HCOH refluxed 15 min., the cooled solution stirred with addition of 10.1 g. II in 50 ml. Et₂O, refluxed 1.5 hrs., freed from solvent, the residue taken up in CH₂Cl₂, the solution extracted twice with H₂O, twice with

5%

aqueous NaHCO₃, and again with H₂O, the dried solution concentrated, and the chilled

concentrate diluted with petr. ether gave 1.5 g. product, m. 55-8°, recrystd. from CH₂Cl₂-petr. ether to give H₂NCO(O₂N)2CCH₂OAc, m. 60-2°. Freshly crystallized MeCH:CHCONH₂ (1.7 g.) and 0.6 g. paraformaldehyde ground in a mortar, the mixture triturated with 2 drops of saturated aqueous K₂CO₃, warmed several min. at 60°, the clear solution taken up in 10 ml. H₂O, the filtered solution warmed 10 min. at 60° with 3 g. I, and filtered yielded 18.3% product, m. 116-17°, recrystd. front ClCH₂CH₂Cl to give MeCH:CHCONHCH₂C(NO₂)CONH₂, m. 120°. I (3.0g.) in 7ml. H₂O kept 16 hrs. at 20° with 1.4 g. H₂C:CHCO₂H and the volatile material evaporated in vacuo gave 2.8 g. CH₂Cl₂-washed material, m. 80-95°, recrystd. from C₂H₄Cl₂ to give H₂NCO(O₂N)2CCH₂CH₂OC₂ m. 115-17°. H₂C:CHCONH₂ (1.4 g.) in 5 ml. MeOH and 3.0 g. I in 10 ml. MeOH warmed 16 hrs. at 40°, the filtered solution evapd, in vacuo, the residue diluted with cold H₂O, and the dried product (2.7 g., m. 105-6°) recrystd. from C₂H₄Cl₂ gave H₂NCO(O₂N)2CCH₂CH₂CONH₂, m. 110-11°. I (5 g.) in 10 ml. MeOH stirred with cooling (ice bath) and dropwise addition of NaOH-MeOH until faintly alkaline gave 5.2 g. salt, m. 167° (decomposition), recrystd. from alc. Et₂O to give I Na salt, m. 170° (with explosion). Similarly were prepared the corresponding K and Ag salts, m. 159, and 130° resp.

L16 ANSWER 36 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 1962:435929 HCAPLUS
 DOCUMENT NUMBER: 57:35929
 ORIGINAL REFERENCE NO.: 57:7106c-f
 TITLE: Aliphatic nitrazapolynitro diamines
 INVENTOR(S): Frankel, Milton B.; Klager, Karl
 PATENT ASSIGNEE(S): Aerojet-General Corp.
 SOURCE: 2 pp.
 DOCUMENT TYPE: Patent
 LANGUAGE: Unavailable
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 3000950		19610919	US	19570304 <--

AB Diamines useful as high explosives were obtained by condensing suitable diammonium salts with 2,2,2-trinitroethanol (I) at pH 4-8. A solution of 6.46 g. I, followed by 1.34 g. NaOH in 10 ml. H₂O, was added to a solution of 9.1 g. 3,3,5,7,7-pentanitro-5-aza-1,9-nonanediammonium dinitrate at 48°. The mixture was stirred 30 min. and chilled while standing over night, giving yellow 1,1,1,6,6,8,10,10,15,15,15-undecanitro-3,8,13-triazapentadecane, m. 90-105° (decomposition). U.S. 3,000,951, Appl. Mar. 7, 1957; 2 pp. The nitration of the diamines of the preceding patent yields nitramines which are high explosives. 1,1,1,6,6,11,11,11-Octanitro-4,8-diazaundecane was added to a solution of 40 ml. 100% HNO₃ and 40 ml. Ac₂O at 5°, the solution warmed to room temperature and poured on ice, the precipitate washed with H₂O, dried, and recrystd. from HNO₃, giving 1,1,1,4,6,6,8,11,11,11-decanitro-4,8-diazaundecane, m. 135-7°, impact stability 10-15 cm./2 kg., heat of combustion 1984 cal./g., lead block and ballistic mortar values 177 and 155, resp. (TNT = 100). Also prepared was 2,2,5,7,7,9,12,12-octanitro-5,9-diazatridecane, m. 137-9°, heat of combustion 2897 cal./g., lead block and ballistic mortar values 128 and 140, resp. (TNT = 100).

L16 ANSWER 37 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 1962:24732 HCAPLUS
 DOCUMENT NUMBER: 56:24732
 ORIGINAL REFERENCE NO.: 56:4619a-b

TITLE: Nitroparaffins
 INVENTOR(S): Urushibara, Shozo
 DOCUMENT TYPE: Patent
 LANGUAGE: Unavailable
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 36010314	B4	19610000	JP	19581002 <--

AB A lower hydrocarbon was treated with HNO₃ in the gas phase in the presence of O (air, or halogen) and a radical formation accelerator selected from di-tertbutyl peroxide, azobisisobutyronitrile, benzoyl peroxide, or alkali bichromate.

L16 ANSWER 38 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 1961:84337 HCAPLUS
 DOCUMENT NUMBER: 55:84337
 ORIGINAL REFERENCE NO.: 55:15934c-e
 TITLE: Nitrate salts of aliphatic polynitro amines
 INVENTOR(S): Frankel, Milton B.
 PATENT ASSIGNEE(S): Aerojet-General Corp.
 DOCUMENT TYPE: Patent
 LANGUAGE: Unavailable
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2978509		19610404	US	<--

AB The title compds., used as explosives or as O donors in propellants, are prepared by treating an isocyanate with HNO₃. For example, MeC(NO₂)₂(CH₂)₂NCO was refluxed on a steam bath with a 10-fold excess of 35% HNO₃ for 3 hrs. The solution was evaporated to dryness in vacuo, and the quant. yield of MeC(NO₂)₂(CH₂)₂NH₂.HNO₃ recrystd. from EtOAc and Et₂O, m. 130-3°; Pb block value, 112, TNT = 100; ballistic mortar value, 116, TNT = 100. Similarly, C(NO₂)₃(CH₂)₂NH₂.HNO₃ was prepared from the related isocyanate. Cf. U.S. 2,978,511 (2nd following abstract).

L16 ANSWER 39 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 1961:84336 HCAPLUS
 DOCUMENT NUMBER: 55:84336
 ORIGINAL REFERENCE NO.: 55:15934b-c
 TITLE: Symmetrical secondary aliphatic polynitro diamines
 INVENTOR(S): Frankel, Milton B.; Klager, Karl
 PATENT ASSIGNEE(S): Aerojet-General Corp.
 DOCUMENT TYPE: Patent
 LANGUAGE: Unavailable
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2978508		19610404	US	<--

AB The diamines, used as explosives, are prepared by condensing a geminal polynitro-containing amine with C(NO₂)₂[CH₂OH]₂ (I). For example, 88 ml. of 1.136N NaOH was added to 0.05 mole I and 0.10 mole C(NO₂)₃(CH₂)₂NH₂.HCl in 50 ml. H₂O. The yellow precipitate of C(NO₂)₂[CH₂NH(CH₂)₂C(NO₂)₃]₂ was washed with H₂O and dried to give an 88% yield of a tan solid, m. 70-80°

with decomposition; Pb block value, 143, TNT = 100, ballistic mortar value, 146, TNT = 100. $C(NO_2)_2[CH_2NH(CH_2)_2C(NO_2)_2Me]_2$ was prepared in like manner from the related amine. Cf. U.S. 2,978,505, 2,978,506, 2,978,507, and 2,978,512 (preceding and following abstrs.).

L16 ANSWER 40 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1957:12975 HCAPLUS

DOCUMENT NUMBER: 51:12975

ORIGINAL REFERENCE NO.: 51:2814g-i,2815a-i,2816a

TITLE: Derivatives of 4,5-dihydronaphtho [1,2]thiazole-2-thiol and -s-triazines

AUTHOR(S): D'Amico, John J.; Harman, Marion W.

CORPORATE SOURCE: Monsanto Chem. Co., Nitro, WV

SOURCE: Journal of the American Chemical Society (1956), 78, 5345-8
CODEN: JACSAT; ISSN: 0002-7863

DOCUMENT TYPE: Journal

LANGUAGE: Unavailable

OTHER SOURCE(S): CASREACT 51:12975

GI For diagram(s), see printed CA Issue.

AB $H_2NCS_2NH_4$ (330 g.) and 1500 cc. EtOH treated with stirring with 642 g. 2-bromo-1-tetralone, the mixture stirred 18 hrs., heated 2 hrs. at 75-80°, cooled to 10°, and filtered, and the residue washed with H₂O and air-dried yielded 80.5 g. 4,5-dihydronaphtho[1,2]thiazole-2-thiol (I), tan solid, m. 206-8° (from EtOH). I (25 g.) in 200 cc. H₂O treated dropwise with stirring with 28.6 g. $(NH_4)_2S_2O_8$ in 70 cc. H₂O during 40 min. at 25-30°, and the mixture stirred 2 hrs. and filtered yielded 96.5% 2,2'-dithiobis(4,5-dihydronaphtho[1,2]thiazole), tan solid, m. 125-6° (from EtOH). I (43.9 g.), 11.2 g. KOH, and 600 cc. Me₂CO treated dropwise with stirring at 20° with 30.3 g. Et₂NCSCl in 150 cc. Me₂CO, the mixture stirred 5 hrs. and filtered, the filtrate added to 700 g. ice water and stirred 15 min., and the solid precipitate isolated yielded

98.5% 4,5-dihydronaphtho[1,2]thiazol-2-yl diethyldithiocarbamate, tan solid, m. 117-18° (from EtOH). Iodine (32.4 g.) and 34.8 g. KI in 420 cc. H₂O added dropwise at 25-30° during 1.5 hrs. with stirring to 24 g. I, 35.2 g. 25% aqueous NaOH, 100 g. H₂O, and 108.9 g. cyclohexylamine, the mixture stirred 1 hr. and extracted with Et₂O, and the extract

worked up yielded 86% N-cyclohexyl-4,5-dihydronaphtho[1,2]thiazole-2-sulfenamide, m. 74-6° (from EtOH). Benzoquinone (27 g.) and 185 cc. MeOH heated to 50°, the solution cooled to 0° and treated with 54.9 g. I and 300 cc. MeOH in 1 portion, the mixture stirred 2 hrs. at 5-10°, heated to 60°, added to 1000 cc. hot H₂O, stirred 0.5 hr., and filtered, and the residue washed with 500 cc. hot H₂O and air-dried at 50° yielded 90.5% (4,5-dihydronaphtho[1,2]thiazol-2-ylthio)hydroquinone, m. 236-8° (from CHCl₃). I (20 g.), 300 cc. Me₂CO, and 5.1 g. KOH treated dropwise with 5.6 g. cyanuric chloride (II) in 400 cc. Me₂CO, heated 5 hrs. at 50-5°, cooled to 25°, and filtered yielded 98.5% 2,4,6-tris(4,5-dihydronaphtho[1,2]thiazol-2-ylthio)-s-triazine, m. 238-9° (from C₆H₆). ZnCl₂ (6.2 g.) in 100 cc. H₂O added with stirring to 20 g. I, 14.6 g. 25% aqueous NaOH, and 2000 cc. H₂O at 80°, the mixture stirred 2 hrs. without heating, and the solid filtered off gave 99% Zn salt of I, m. 180-90° (decomposition). 2,4-(O₂N)₂C₆H₃Cl (20.3 g.) added in 1 portion with stirring to 21.9 g. I, 5.6 g. KOH, and 300 cc. Me₂CO, the mixture stirred 5 hrs. at 50-6°, cooled to room temperature, poured onto 700 g. crushed ice, stirred 1 hr., and filtered, and the residue washed and dried at 50° yielded 80.5% 2-(2,4-dinitrophenylthio)-4,5-dihydronaphtho[1,2]thiazole, m.

173-4° (from EtOAc). I (54.9 g.), 40 g. 25% aqueous NaOH, and 500 cc. H₂O treated with stirring with 36 g. Me₂N(CH₂)₂Cl.HCl and 40 g. 25% aqueous NaOH, the mixture heated 5 hrs. with stirring at 50-60°, cooled to 25°, and extracted with Et₂O, and the extract worked up gave 82.5% 4,5-dihydro-2-(2-dimethylaminoethylthio)naphtho[1,2]thiazole, amber oil. I (43.8 g.) treated with 11.2 g. KOH in 500 cc. Me₂CO, the solution treated at room temperature with 12.3 g. (.tplbond.CCH₂Cl)₂, the mixture heated 24 hrs. at 50-6°, poured onto 500 g. crushed ice, stirred 10 min., and filtered, and the residue washed and dried gave 98.2% 2,2'-(2-butylenedithio)bis(4,5-dihydronaphtho[1,2]thiazole) (III), m. 145-6° (from EtOAc). A similar run using 12.5 g. (:CHCH₂Cl)₂ gave 98.5% 2-butylenedithio analog of III, m. 113-14° (from EtOH). I (109.6 g.), 500 cc. H₂O, and 80 g. 25% aqueous NaOH treated with stirring with 44.8 g. MeCHClCN, the mixture heated 2 hrs. at 50-60°, kept 3 hrs. at 25-30°, diluted with stirring with 400 cc. Et₂O, stirred 15 min., and filtered, and the residue dried gave 56 g. unchanged I; the filtrate washed with H₂O, dried, and distilled gave 85.2% (38.3% conversion) 3-(4,5-dihydronaphtho[1,2]thiazol-2-ylthio)propionitrile, amber oil. I (33 g.), 8.4 g. KOH, and 300 cc. Me₂CO treated with stirring with 20.2 g. Ac₂CHCl in 1 portion, the mixture stirred 5 hrs. and filtered, the filtrate poured onto 500 g. crushed ice and stirred 20 min., and the precipitate filtered, washed, and dried yielded 90.5% 3-(4,5-dihydronaphtho[1,2]thiazol-2-ylthio)-2,4-pentanedione, m. 105-6° (from EtOH). A similar run with 14 g. ClCH₂Ac gave 91.1% 2-(acetonylthio)-4,5-dihydronaphtho[1,2]thiazole, m. 68-9° (from EtOH). A similar run with 24.8 g. AcCHClCO₂Et filtered, the Me₂CO filtrate evaporated in vacuo, the residue dissolved in 500 cc. Et₂O, and the Et₂O solution worked up gave 90.3% Et α-(4,5-dihydronaphtho [1,2]thiazol-2-ylthio)acetoacetate, oil. I (21.9 g.), 5.6 g. KOH, and 300 cc. Me₂CO treated with stirring with 0.1 mole CH₂:CHCH₂Cl, and the mixture heated 5 hrs. at 55-6°, filtered, and evaporated in vacuo up to 90° gave 96.5% 2-allylthio-4,5-dihydronaphtho[1,2]thiazole (IV), oil. A similar run with 0.1 mole ClCH₂CH:CClMe carried out in the same manner, the filtrate poured onto 500 g. crushed ice, stirred 15 min., and filtered, and the residue washed and dried gave 88.0% 2-(MeCCl:CHCH₂) analog of IV, m. 63-5°. ClCH₂CCl:CH₂ (0.1 mole) gave similarly 98.7% 2-(CH₂:CClCH₂) analog of IV, m. 60-1° (from EtOH). Na, K, or amine salt (1 mole) of the appropriate dialkyldithiocarbamic acid dissolved in 1000 cc. Me₂CO at 56°, the solution treated dropwise with stirring with 61.5 g. II in 500 cc. Me₂CO, the mixture heated 4 hrs. with stirring at 55-6° and filtered at 55-6°, the filtrate concentrated in vacuo to 100 cc. and diluted with stirring with 200 cc. heptane, and the mixture stirred 20 min., and filtered yielded the corresponding I compound RC:N.CR':N.CR':N (R, R', m.p., % crude yield, and dialkyldithiocarbamic acid salt used are given): Me₂N, Me₂NCS₂, 172-3° (from dioxane), 48.0, Me₂NCS₂Na; Et₂NCS₂, Et₂NCS₂, 136-7°, 39.5, Et₂NCS₂K; iso-Pr₂NCS₂, iso-Pr₂NCS₂, 119-20° (from dioxane), 31.4, iso-Pr₂NCS₂K; Me₂N, Me₂NCS, 163-4° (from C₆H₆), 84.3, Me₂NCS₂NH₂Me₂; Et₂N, Et₂NCS₂, 115-16° (from EtOH), 56.9, Et₂NCS₂NH₂Et₂; iso-Pr₂N, iso-Pr₂NCS₂, 218° (from dioxane), 39.9, iso-Pr₂NCS₂NH₂(CHMe₂)₂.

L16 ANSWER 41 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1957:12974 HCAPLUS

DOCUMENT NUMBER: 51:12974

ORIGINAL REFERENCE NO.: 51:2814a-g

TITLE: Derivatives of 4-nitrazapentanitrile

AUTHOR(S): Frankel, Milton B.; Klager, Karl

SOURCE: Journal of the American Chemical Society (1956), 78, 5428-30
CODEN: JACSAT; ISSN: 0002-7863

DOCUMENT TYPE: Journal

LANGUAGE: Unavailable

AB 4-Azapentanonitrile (I) (1260 g.) added with stirring to 1485 g. 70% HNO₃ at 0-5° and filtered yielded 1200 g. I. HNO₃, m. 70-1°. Concentrated HCl (13.8 cc.) and 42 cc. tech. grade 100% HNO₃ added successively dropwise with stirring to 840 cc. Ac₂O, the mixture treated at 20-5° with 735 g. I. HNO₃ in portions during 0.5 hr., warmed to 30°, stirred 2 hrs., cooled to 5° and diluted with 2 l. ice water, the aqueous phase extracted with 600 cc. CH₂Cl₂, and the combined oily layer and CH₂Cl₂ extract worked up yielded 600 g. 4-nitrazapentanonitrile (II), light yellow liquid, b_{0.040} 60-70°, n_{25D} 1.4863. Dry HCl bubbled, with stirring, into 129.0 g. II, 130 cc. MeOH, and 130 cc. absolute Et₂O to saturation, the mixture stirred 2.5 hrs. at 0-5° and filtered, the white solid filter residue added to 130 cc. H₂O, neutralized with saturated aqueous NaHCO₃ and heated 0.5 hr. at 50°, the aqueous phase extracted with CH₂Cl₂, and the combined oily layer and CH₂Cl₂ extract worked up gave 100 g. Me ester (III) of 4-nitrazapentanoic acid (IV), colorless liquid, b₁ 107°, n_{25D} 1.4694; similarly was prepared the Et ester of IV, b₁ 112°, n_{25D} 1.4644. II (812 g.) and 2436 cc. concentrated HCl heated 8 hrs. on the steam bath, cooled, and extracted with CH₂Cl₂, and the extract worked up gave 463.5 g. IV, white solid, m. 53-4° [from (CH₂Cl)₂]. III (162.0 g.) and 325 cc. concentrated HCl refluxed 3 hrs. and concentrated in vacuo yielded 102.0 g. IV, m. 53-4° (from iso-Pr₂O). IV (148 g.) added portionwise to 240 cc. SOCl₂, warmed gently on the steam bath to initiate the reaction, refluxed 2 hrs., cooled, and concentrated gave 100% crude chloride (V) of IV, light yellow liquid, b_{0.010} 100-7°, n_{25D} 1.4997. (CH₂OH)₂ (12.0 g.), 84.0 g. V, and 200 cc. CHCl₃ refluxed 20 hrs., cooled, washed, and worked up yielded 43.0 g. ethylene bis-4-nitrazapentanoate, white solid, m. 58-8.5° (from MeOH). V (167.0 g.) in 150 cc. CHCl₃ added slowly with stirring to 130.0 g. NaN₃ in 390 cc. H₂O at 10-15°, and stirred 0.5 hr. at 10°, the aqueous layer extracted with 150 cc. CHCl₃, the extract washed, dried, filtered, and refluxed until the N evolution ceased, and the solution concentrated in vacuo gave 133 g. 3-nitrazabutyl isocyanate (VI), white crystals, m. 25-6° (from dry Et₂O). VI (29.0 g.) and 30 cc. MeOH refluxed 0.5 hr. and concentrated in vacuo gave 30.1 g. Me 3-nitrazabutylcarbamate, white solid, m. 87-8° (from CHCl₃-CCl₄). VI (29.0 g.) treated with 50 cc. 35% HNO₃, warmed 1 hr. on the steam bath, and concentrated in vacuo yielded 3-nitrazabutylammonium nitrate, white needles, m. 120-1° (from MeOH). Concentrated HCl and VI gave similarly the chloride analog, m. 132-3°. 3-Nitrazabutylamine (VII) (11.9 g.) in 50 cc. CHCl₃ treated with 7.3 g. (CO₂Et)₂ yielded 9.9 g. N,N'-bis(3-nitrazabutyl) oxamide (VIII), white solid, m. 225-30°. VIII (9.0 g.), 140 cc. 100% HNO₃, and 130 cc. concentrated HCl heated with stirring 35 min. at 50-5°, cooled, and poured onto ice yielded 8.8 g. di-NO₂ derivative, m. 168-9° (from Me₂CO). VII.HCl (15.6 g.), 25 cc. H₂O, and 8.1 g. 37% aqueous CH₂O treated dropwise with 8.2 g. NaOAc in 15 cc. H₂O, stirred 0.5 hr., and filtered yielded 5.9 g. 1,3,5-tris(3-nitrazabutyl)hexahydro-1,3,5-triazine, m. 97-7.5° (from EtOAc). VII.HCl (46.5 g.), 24.9 g. (O₂N)₂C(CH₂OH)₂, and 100 cc. H₂O treated dropwise with 24.6 g. NaOAc in 75 cc. H₂O and filtered gave 34.6 g. 2,7,7,

12-tetranitro-2,5,9,12-tetraazatridecane (IX), yellow solid, m.
110-15°. IX (3.68 g.), 0.81 g. 37% aqueous CH₂O, and 100 cc. H₂O
stirred 1 hr. at room temperature and 1 hr. at 40-5° yielded 3.2 g.
1,3-bis(3-nitrazabutyl)-5,5-dinitrohexahydro-1,3-diazine, tan solid, m.
120-1° (from CHCl₃).

=> d 119 ibib abs tot

L19 ANSWER 1 OF 20 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2005:168855 HCAPLUS
DOCUMENT NUMBER: 143:221244
TITLE: Multidentate aminoalkoxides. Synthesis and
complexation behavior to lithium and sodium
AUTHOR(S): Mueller, Gerhard; Schaetzle, Torsten
CORPORATE SOURCE: Fachbereich Chemie, Universitaet Konstanz, Konstanz,
D-78464, Germany
SOURCE: Zeitschrift fuer Naturforschung, B: Chemical Sciences
(2004), 59(11/12), 1400-1410
CODEN: ZNBSEN; ISSN: 0932-0776
PUBLISHER: Verlag der Zeitschrift fuer Naturforschung
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The tris(dimethylaminomethyl)-substituted alc. (R₂NCH₂)₃COH (R = Me, 1)
was synthesized by reaction of 1-chloro-2,3-epoxy-2-chloromethylpropane
with a large excess of 40% aqueous HNMe₂ in 95% yield as colorless liquid (b.p.
87°/1 mbar). Similar syntheses led to the resp. amino alcs. with R
= Et, CH₂Ph. The dimethylamino alc. 1 was characterized crystallog. as
the trihydrochloride salt 2. Reaction of 1 with elemental sodium in
toluene gave the tetrameric alcoholate [(Me₂NCH₂)₃CONa]₄ (3) which has a
heterocubane structure in the solid state. In addition to three oxygen
atoms, each sodium atom is coordinated by two amino groups from two
different adjacent ligands (Na-N 2.529(3)/2.628(3) Å). Reaction of 1
with LiNMe₂ afforded the lithium alcoholate which crystallized as dimeric
mixed-anion aggregate [(Me₂NCH₂)₃COLi·LiNMe₂]₂ (4). It has a
four-rung ladder structure consisting of two four-membered Li(NMe₂)LiO
rings connected through a central LiOLiO ring. All ligand amino groups
are lithium-coordinated (Li-N 2.117(6)/2.101(6)/2.218(6) Å) as is the
amido nitrogen atom (Li-N 1.964(6)/2.027(6) Å). Reaction of 1 with
Li^tBu in n-hexane also led to deprotonation at oxygen. In one ligand one
Me group is deprotonated, in a 2nd one two Me groups are lithiated leading
to doubly and triply charged anions, resp. The product crystallizes as
the dimeric mixed-anion aggregate [(-H₂CN(Me)CH₂)(Me₂NCH₂)₂CO-
·5Li+·(-H₂CN(Me)CH₂)₂(Me₂NCH₂)CO-]₂ (5) having a core of 10
Li⁺ cations, 4 alcoholate oxygen atoms, and 6 N(Me)-CH₂- groups.

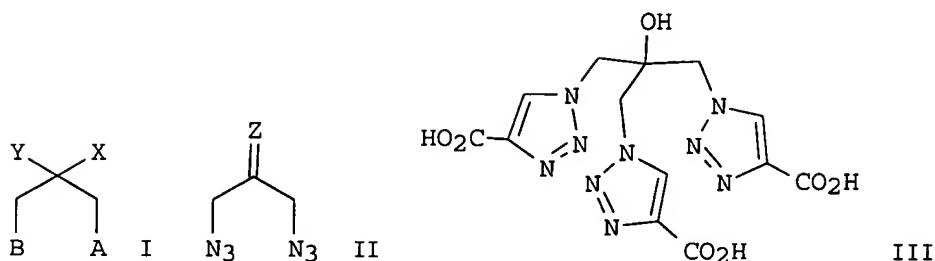
REFERENCE COUNT: 97 THERE ARE 97 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L19 ANSWER 2 OF 20 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2005:29032 HCAPLUS
DOCUMENT NUMBER: 142:114074
TITLE: Preparation of polyazido carboxylic acid esters
INVENTOR(S): Dave, Paritosh R.; Duddu, Raja G.; Damavarapu, Reddy;
~~Gelber, Nathaniel~~; Yang, Kathy; Surapaneni, C. Rao
PATENT ASSIGNEE(S): United States Dept. of the Army, USA
SOURCE: U.S., 9 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6841690	B1	20050111	US 2003-604778	20030815
US 6965042	B1	20051115	US 2003-604777	20030815
PRIORITY-APPLN. INFO.: GI			US 2002-319801P	P 20021219



AB This invention relates to a series of novel compds., such as I [X = N₃, OH, ONO₂, NO₂; Y = CH₂N₃, NO₂; A, B = N₃, 4-carboxytriazolomethyl], and II [Z = CH₂, O, NOH, 2,4-dihydrophenylhydrozono], including 2-azido-2-azidomethyl-1,3-diazidopropane, 2-azidomethyl-2-hydroxy-1,3-diazidopropane, 2-azidomethyl-2-nitrato-1,3-diazidopropane, 2-azidomethyl-2-nitro-1,3-diazidopropane, 2,2-dinitro-1,3-diazidopropane, methallyldiazide, a dimer of methallyldiazide, comprising 3a,8a-bis-azidomethyl-3a,4,8a,9-tetrahydro-3H,8H-bis[1,2,3]triazolo[1,5-a;1'',5''-d]pyrazine, 1,3-diazidoacetone, and 2-oximido-1,3-diazidopropane. Also shown are reaction intermediates of these compds., including 2,2-bis(chloromethyl)oxirane, and 2,2-bis(azidomethyl)oxirane. In addition, a number of potentially useful energetic compds. have been prepared from the low mol. weight polyazido compds. above, including N-2(azido-1-azidomethyl-ethylidene)-N''-(2,4-dinitrophenyl)-hydrazine (7-DNPH), 1,3-bis(4-carboxytriazolyl)2,2-dinitropropane, tris(4-carboxytriazolomethyl)methanol, benzene-1,3,5-tricarboxylic acid tris(2-azido-1,1-bisazidomethyl-ethyl)ester, adamantane 1,3,5,7-tetracarboxylic acid tetrakis(2-azido-1,1-bisazidomethyl-ethyl)ester, adamantane carboxylic acid (2-azido-1,1-bisazidomethyl-ethyl)ester, cubane 1,3,5,7-tetracarboxylic acid tetrakis(2-azido-1,1-bisazidomethyl-ethyl)ester, cubane 1,4-dicarboxylic acid bis(2-azido-1,1-bisazidomethyl-ethyl)ester. Thus, tris(4-carboxytriazolomethyl)methanol (III) was prepared by the reaction of 2-azidomethyl-2-hydroxy-1,3-diazidopropane I [A, B = N₃; X = CH₂N₃; Y = OH] (also prepared) with propiolic acid.

REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L19 ANSWER 3 OF 20 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2004:884285 HCAPLUS
DOCUMENT NUMBER: 142:355291
TITLE: Preparation of multi-aza-C60 derivatives
INVENTOR(S): Chen, Xiaolian; Tang, Guangshi
PATENT ASSIGNEE(S): Peop. Rep. China

SOURCE: Faming Zhuanli Shenqing Gongkai Shuomingshu, 8 pp.
CODEN: CNXXEV
DOCUMENT TYPE: Patent
LANGUAGE: Chinese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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CN 1465576	A	20040107	CN 2002-121196	20020611

PRIORITY APPLN. INFO.: CN 2002-121196 20020611

AB The method comprises cycloaddn. of C60 with multi-triazo compound, e.g. 2-methyl-2-nitro-1,3-di(triazo)propane, in organic solvent, such as toluene, chlorobenzene, xylene, etc., and purification on 200-300 mesh silica gel column with toluene-petroleum ether (3-5:3-5, volume/volume) as eluent.

L19 ANSWER 4 OF 20 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:807738 HCAPLUS
DOCUMENT NUMBER: 142:6481
TITLE: The First Trisaza-Bridged [60]Fulleroid: Drilling a Hole on the Fullerene
AUTHOR(S): Tang, Guang-Shi; Chen, Xiao-Lian; Zhang, Sheng-Yuan; Wang, Jing
CORPORATE SOURCE: Key Laboratory of Science and Technology of Controllable Chemical Reactions, Ministry of Education, Beijing University of Chemical Technology, Beijing, 100029, Peop. Rep. China
SOURCE: Organic Letters (2004), 6(22), 3925-3928
CODEN: ORLEF7; ISSN: 1523-7060
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 142:6481

AB Two types of trisaza-bridged [60]fulleroids have been synthesized. By means of ¹³C NMR, ¹H NMR, MALDI-TOF MS, FTIR, UV-vis, and 2D-NMR (gHSQC, gHMBC, and NOSEY) spectroscopy, they have been shown to be tris[6,5]-opened-aza-bridged adducts with substituents on the same five-membered ring with C_s symmetry. Some data of nonlinear optics and electrochem. for the product are also reported.

REFERENCE COUNT: 29 THERE ARE 29 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L19 ANSWER 5 OF 20 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:717422 HCAPLUS
DOCUMENT NUMBER: 141:366573
TITLE: Click chemistry in materials synthesis. 1. Adhesive polymers from copper-catalyzed azide-alkyne cycloaddition
AUTHOR(S): Diaz, David D.; Punna, Sreenivas; Holzer, Philipp; McPherson, Andrew K.; Sharpless, K. Barry; Fokin, Valery V.; Finn, M. G.
CORPORATE SOURCE: Department of Chemistry, The Scripps Research Institute, La Jolla, CA, 92037, USA
SOURCE: Journal of Polymer Science, Part A: Polymer Chemistry (2004), 42(17), 4392-4403
CODEN: JPACEC; ISSN: 0887-624X
PUBLISHER: John Wiley & Sons, Inc.
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The copper(I)-catalyzed cycloaddn. reaction between azides and alkynes has been employed to make metal-adhesive materials. Copper and brass surfaces supply the necessary catalytic Cu ions, and thus the polymerization process occurs selectively on these metals in the absence of added catalysts. Alternatively, copper compds. can be added to monomer mixts. and then introduced to reducing metal surfaces such as zinc to initiate polymerization. The resulting materials were found to possess comparable or superior adhesive strength to standard com. glues, and structure-activity correlations have identified several important properties of the monomers.

REFERENCE COUNT: 40 THERE ARE 40 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L19 ANSWER 6 OF 20 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:137939 HCAPLUS

DOCUMENT NUMBER: 140:357709

TITLE: Preparation of cage molecule based polyazido core units for dendrimer synthesis

AUTHOR(S): Dave, Paritosh R.; Duddu, Raja; Yang, Kathy; Damavarapu, Reddy; Gelber, Nathaniel; Surapaneni, Rao; Gilardi, Richard

CORPORATE SOURCE: GEO-CENTERS, INC. at ARDEC, Picatinny Arsenal, NJ, 07806-5000, USA

SOURCE: Tetrahedron Letters (2004), 45(10), 2159-2162
CODEN: TELEAY; ISSN: 0040-4039

PUBLISHER: Elsevier Science B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Core mols. based on benzene-, cubane-, and adamantane-polycarboxylates with peripheral polyazido substitution were prepared. The first synthesis of 1,3-diazidoacetone and its conversion to the corresponding oxime, DNPH, and 2,2-dinitro derivs. is also reported. All azido compds. should be considered dangerous and proper precautions should be taken during handling and storage of these mols.

REFERENCE COUNT: 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L19 ANSWER 7 OF 20 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2002:605702 HCAPLUS

DOCUMENT NUMBER: 138:75615

TITLE: Novel polyazido/polynitrato compounds derived from methallyl dichloride

AUTHOR(S): Surapaneni, Rao; Damavarapu, Reddy; Duddu, Raja; Dave, Paritosh R.; Gilardi, Richard D.

CORPORATE SOURCE: US Army Armament Research Development and Engineering Center, Picatinny Arsenal, NJ, 07806-5000, USA

SOURCE: International Annual Conference of ICT (2002), 33rd(Energetic Materials), 147/1-147/5
CODEN: IACIEQ; ISSN: 0722-4087

PUBLISHER: Fraunhofer-Institut fuer Chemische Technologie

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Several polynitrato and polyazido compds., derived from a lower homolog of pentaerythritol and have one less methylene unit, were synthesized in order to develop lead-free primary explosives. The compds. were derived from methallyl dichloride by such reactions as epoxidn., nucleophilic substitution, and ring-opening nitration. Nitration. These compds. are of potential interest as energetic plasticizers and their multiple functional groups can be exploited to prepare novel dendritic structures.

L19 ANSWER 8 OF 20 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2001:99711 HCAPLUS
 DOCUMENT NUMBER: 134:297035
 TITLE: Azido-containing polyurethanes
 AUTHOR(S): Tselinskii, I. V.; Bestuzheva, V. V.; Nalimova, N. K.; Skirdova, G. V.
 CORPORATE SOURCE: St. Peterburg. Gos. Tekhnol. Inst., Russia
 SOURCE: Zhurnal Prikladnoi Khimii (Sankt-Peterburg, Russian Federation) (2000), 73(12), 2057-2060
 CODEN: ZPKHAB; ISSN: 0044-4618
 PUBLISHER: Nauka
 DOCUMENT TYPE: Journal
 LANGUAGE: Russian

AB High energy polyurethane elastomers with good mech. strength were prepared by reacting poly(butylene ethylene adipate) with a diisocyanate (HMDI, MDI, TDI) and a crosslinker (glycerol, pentaerythritol) in the presence of azide plasticizers. The polymers can be used as binders for rocket fuel.

L19 ANSWER 9 OF 20 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1995:830797 HCAPLUS
 DOCUMENT NUMBER: 123:291159
 TITLE: Development of energetic additives for propellants in China
 AUTHOR(S): Ou, Yuxiang; Chen, Boren; Yan, Hong; Jia, Huiping; Li, Jianjun; Dong, Shuan
 CORPORATE SOURCE: Department Chemical Engineering, Beijing Institute Technology, Beijing, 100081, Peop. Rep. China
 SOURCE: Journal of Propulsion and Power (1995), 11(4), 838-47
 CODEN: JPPOEL; ISSN: 0748-4658
 PUBLISHER: American Institute of Aeronautics and Astronautics
 DOCUMENT TYPE: Journal
 LANGUAGE: English

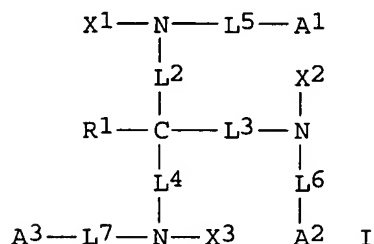
AB The development of energetic azide binders and plasticizers for solid propellants in China was described, focusing on 14 azides. The reaction routes and conditions for preparing these azides were summarized; the performance of the azides, including d., m.p., enthalpy of formation, thermal decomposition temperature (determined by differential scanning calorimetry or DTA), impact sensitivity, etc, were presented. The azides were arranged in six categories: (1) azide polyethers (glycidyl azide polymer, 3,3-bis(azidomethyl)oxetane (BAMO) homopolymer, and BAMO-tetrahydrofuran copolymer), (2) azidonitramines (1,5-diazido-3-nitrazapentane, N-nitro-N-azidomethyl-gem-dinitroethylmethylamine, and N,N'-bis(azidomethyl-gem-dinitroethyl)ethylenedinitramine), (3) azidonitro compds. [2-nitro-2-methyl-1,3-diazidopropane, 2-nitro-2-azidomethyl-1,3-diazidopropane, and 1-azido-2-(2,4,6-trinitrophenyl)ethane], (4) aliphatic azides (1,2,4-triazidobutane and tetraazidomethylemethane), (5) azidonitrates (pentaerythritol diazidodinitrate), and (6) oxygen heterocyclic azides (3-azidomethyl-3-ethyloxetane and 2,2-dimethyl-5-azidomethyl-5-nitro-1,3-dioxane).

L19 ANSWER 10 OF 20 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1995:767546 HCAPLUS
 DOCUMENT NUMBER: 123:183322
 TITLE: Photographic processing compositions and processing method
 INVENTOR(S): Inaba, Tadashi
 PATENT ASSIGNEE(S): Fuji Photo Film Co Ltd, Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 41 pp.

DOCUMENT TYPE: CODEN: JKXXAF
 LANGUAGE: Patent
 FAMILY ACC. NUM. COUNT: Japanese
 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 07114162	A2	19950502	JP 1993-262688	19931020
PRIORITY APPLN. INFO.:			JP 1993-262688	19931020
OTHER SOURCE(S):	MARPAT	123:183322		
GI				

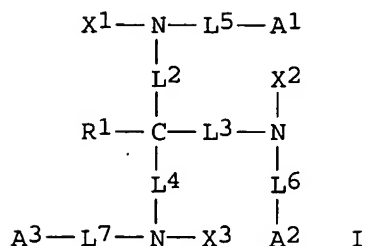


AB The title compns. contain at least one kind of I [R1 = H, substituent;
 X1-3 = H, L1A; L1-7 = divalent aliphatic, divalent aromatic; A, A1-3 = CO2H,
 OM,
 SO3M, PO(OM)2; M = H, cation] or its chelate compound with Fe(III), Mn(III),
 Co(III), Rh(II), Au(II), or Ce(IV). A bleaching agent may contain the
 above compns.

L19 ANSWER 11 OF 20 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 1995:705389 HCAPLUS
 DOCUMENT NUMBER: 123:97788
 TITLE: Photographic processing material
 INVENTOR(S): Inaba, Tadashi
 PATENT ASSIGNEE(S): Fuji Photo Film Co Ltd, Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 33 pp.
 CODEN: JKXXAF

DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 07114154	A2	19950502	JP 1993-259956	19931018
PRIORITY APPLN. INFO.:			JP 1993-259956	19931018
GI				



AB The title processing material contains a compound I (R1 = H, substitute; X1-3 = H, -L1-A; L1-7 = divalent group; A, A1-3 = CO2M, OM, SO3M, PO(OM)2; M = cation) or its salt. The invention processing material can prevent mold and bacteria generation and photog. characteristics deterioration caused by metal ions.

L19 ANSWER 12 OF 20 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1994:523819 HCAPLUS

DOCUMENT NUMBER: 121:123819

TITLE: Macrobicyclic cobalt(III) hexaamine complexes based on tris(propylenediamine)cobalt(III)

AUTHOR(S): Benjarvongkulchai, Soontaree; Kaewhom, Anusak; Waitayasuwan, Patranit

CORPORATE SOURCE: Fac. Sci., Silpakorn Univ., Nakorn Pathom, 73000, Thailand

SOURCE: Journal of the Science Society of Thailand (1992), 18(3), 151-61

CODEN: VKSTDB; ISSN: 0303-8122

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The cage complexes: Δ ,fac-lel3-[Co(NO2)2Me3sar]3+ (1) ((NO2)2Me3sar = 1,8-dinitro-(4R,12R,17R)-trimethyl-3,6,10,13,16,19-hexaazabicyclo[6.6.6]eicosane) and Δ ,fac-lel3-[Co(Me3sep)]3+ (3) (Me3sep = (4R,12R,17R)-trimethyl-1,3,6,8,10,13,16,19-octaazabicyclo[6.6.6]eicosane) and their corresponding halfcage complexes: Δ ,fac-lel3-[Co(NO2Me3semisar)]3+ (2) (NO2Me3semisar = tris(((2-aminopropyl)amino)methyl)nitromethane) and Δ ,fac-lel3-[Co(Me3semisep)]3+ (4) (Me3semisep = tris(((2-aminopropyl)amino)methyl)amine) are synthesized from Δ ,fac-lel3-[Co(R)(-)pn3]3+. Likewise their Λ -enantiomers are synthesized from Λ ,fac-lel3[Co(S)(+)pn3]3+. The sp. rotations, IR spectra, visible spectra, NMR spectra and oxidation-reduction potentials are recorded.

L19 ANSWER 13 OF 20 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1994:181567 HCAPLUS

DOCUMENT NUMBER: 120:181567

TITLE: Structural characterization of encapsulation reactions based on the tris(ethane-1,2-diamine)cobalt(III) ion

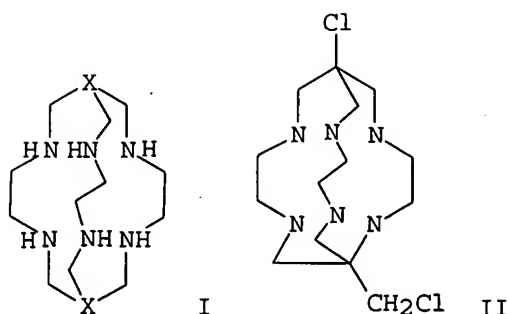
AUTHOR(S): Clark, Ian J.; Geue, Rodney J.; Engelhardt, Lutz M.; Harrowfield, Jack M.; Sargeson, Alan M.; White, Allan H.

CORPORATE SOURCE: Dep. Chem., Univ. West. Australia, Nedlands, 6009, Australia

SOURCE: Australian Journal of Chemistry (1993), 46(10), 1485-505

CODEN: AJCHAS; ISSN: 0004-9425

DOCUMENT TYPE: Journal
 LANGUAGE: English
 GI



AB From structural comparisons involving intermediates and side products of encapsulation (clathrochelation) reactions as well as several cage complexes, the efficiency of the base-catalyzed reaction between formaldehyde, nitromethane and [Co(en)₃]³⁺ to give [Co((NO₂)₂sar)]³⁺ [(NO₂)₂sar = I, X = CNO₂] appears to be explicable in terms of the 'interlocking' of constituent parts without appreciable concomitant bond length or bond angle distortions. Crystal structures were determined for Λ -[Co(NO₂sen)]Cl₃·2H₂O [NO₂sen = O₂NC(CH₂NHCH₂CH₂NH₂)₃] and Δ , Λ -[CoL]Cl₃·nH₂O (L = I; X = CNO₂, n = 2; X = OH, n = 3), and Δ , Λ -[CoL'] (NO₃)₃ (L' = II) and 2 related complexes. The structures show very close configurational and conformational similarities to each other as well as to published structures of [Co(en)₃]³⁺, [Co(tame)₂]³⁺ (tame = 1,1,1-tris(aminomethyl)ethane) and other cage complexes. Some of these similarities may be associated with common hydrogen-bonding patterns in the solids resulting from anion 'chelation' by adjacent NH moieties in the metal ion coordination spheres. Necessary caution in relating structural and electronic properties is implied by the structure determination for Δ , Λ -[CoL'] (NO₃)₃ [monoclinic, P2₁/c, R = 0.061], one of the products of mol. rearrangement following nitrosation of [Co((NH₂)₂sar)]³⁺. Despite marked electronic spectral and electrochem. differences with its parent complex, [CoL'] (NO₃)₃ contains cobalt(III) in a coordination environment which remains similar to those in more sym. cage complexes.

L19 ANSWER 14 OF 20 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 1991:217995 HCAPLUS
 DOCUMENT NUMBER: 114:217995
 TITLE: Silver halide photographic materials containing rapid-acting vinyl sulfone hardening agent
 INVENTOR(S): Nishizeki, Masahito; Tachibana, Noriki; Kagawa, Nobuaki
 PATENT ASSIGNEE(S): Konica Co., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 18 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 02238451	A2	19900920	JP 1989-57891	19890313
PRIORITY APPLN. INFO.:			JP 1989-57891	19890313

OTHER SOURCE(S): MARPAT 114:217995

AB The photog. material has ≥ 1 component layer(s) hardened with
 $\text{CH}_2:\text{CHSO}_2\text{CH}_2\text{CONRCH}_2\text{CR}_1(\text{OH})[\text{ZCR}_2(\text{OH})]\text{mCH}_2\text{NR}_3\text{COCH}_2\text{SO}_2\text{CH}:\text{CH}_2$ and/or
 $\text{CH}_2:\text{CHSO}_2\text{CH}_2\text{CONR}_4\text{CH}(\text{CH}_2\text{OH})[\text{Z}_1\text{CH}(\text{CH}_2\text{OH})]\text{nNR}_5\text{COCH}_2\text{SO}_2\text{CH}:\text{CH}_2$ (R, R₃₋₅ = H,
 C1-4 hydrocarbon, $\text{CH}_2:\text{CHSO}_2\text{CH}_2\text{CO}$; R + R₃, R₄ + R₅ may be C1-4 alkylene and
 form rings; R₁, R₂ = H, C1-4 alkyl, $\text{CH}_2:\text{CHSO}_2\text{CH}_2\text{CONR}_6\text{CH}_2$; R₆ = H, C1-4
 hydrocarbon; Z, Z₁ = organic moiety, bivalent linkage group; m, n = 0, 1).

L19 ANSWER 15 OF 20 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1990:601276 HCAPLUS

DOCUMENT NUMBER: 113:201276

TITLE: Silver halide photographic materials containing
water-soluble vinyl sulfone hardenersINVENTOR(S): Nishizeki, Masahito; Tachibana, Noriki; Kagawa,
Nobuaki

PATENT ASSIGNEE(S): Konica Co., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 18 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 02110545	A2	19900423	JP 1988-262821	19881020
PRIORITY APPLN. INFO.:			JP 1988-262821	19881020

AB The title materials comprise supports and ≥ 1 layer hardened with
 vinyl sulfones of the formula $(\text{CH}_2:\text{CHSO}_2\text{CH}_2\text{CH}_2\text{CONR})\text{nZ}$ (I; R = H, C1-4
 hydrocarbon residue, $\text{CH}_2:\text{CHSO}_2\text{CH}_2\text{CH}_2\text{CO}$; Z = a di- to tetravalent
 OH-substituted organic group; n = 2, 3, 4). Thus, high-speed color neg.
 films, prepared by addition of the vinyl sulfone I [R = H; Z = $\text{CH}_2\text{CH}(\text{OH})\text{CH}_2$; n
 = 2] to each component layer, showed excellent antifogging characteristics
 and high strength.

L19 ANSWER 16 OF 20 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1989:174257 HCAPLUS

DOCUMENT NUMBER: 110:174257

TITLE: Synthesis of the macroporous polystyrene strongly
basic anion exchanger (type 1) with high exchange
capacity

AUTHOR(S): Jin, Qunying; Tang, Guoan

CORPORATE SOURCE: Inst. Sci., Yibin Tianyuan Chem. Plant, Peop. Rep.
China

SOURCE: Lizi Jiaohuan Yu Xifu (1987), 3(2), 9-13

CODEN: LJYXE5; ISSN: 1001-5493

DOCUMENT TYPE: Journal

LANGUAGE: Chinese

AB The title anion exchanger was prepared by suspension polymerization of styrene
with

divinylbenzene followed by chloromethylation and amination of the
 resultant copolymer. The anion exchanger had an ion-exchange capacity
 4-4.4 meq/g resin, surface area 40-50 m²/g, and average pore radius 90-100
 Å. The chemical and phys. properties of the anion exchanger were similar

with those of Amberlite IRA 900C resin. Paraffin and petroleum liqs. were used as pore-forming agents.

L19 ANSWER 17 OF 20 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 1976:67790 HCAPLUS
 DOCUMENT NUMBER: 84:67790
 TITLE: Diffusion transfer color film unit
 INVENTOR(S): Ono, Yoshiaki
 PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan
 SOURCE: Ger. Offen., 92 pp.
 CODEN: GWXXBX
 DOCUMENT TYPE: Patent
 LANGUAGE: German
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 2455022	A1	19750522	DE 1974-2455022	19741120
JP 50081537	A2	19750702	JP 1973-130379	19731120
US 3960569	A	19760601	US 1974-525431	19741120
GB 1480370	A	19770720	GB 1974-50378	19741120

PRIORITY APPLN. INFO.: JP 1973-130379 A 19731120

AB The fast formation of diffusion-transfer color images having high contrast is achieved by using a phys. developer containing an alkanolamine as developer accelerator at 0.05-3 g/l. of processing solution Especially useful as the accelerator is N-(aminoethyl)ethanolamine. Thus, a color diffusion-transfer film unit, which was described in detail, was imagewise exposed and then developed by rupturing a pod contg. a processing solution of the following composition: ascorbic acid 20, 6-nitrobenzimidazole nitrate 15 mg, Na₂S₂O₃ 0.8, TiO₂ 3, NaOH 4, CM-cellulose Na salt 3.5, 4-amino-3-methyl-N-ethyl-N-(β-hydroxyethyl)aniline sulfate 3 g, N-(aminoethyl)ethanolamine 0.1 ml, and water 100 ml. The red, green, and blue D_{max} values were 1.60, 1.65, and 1.60, resp.; the red, green, and blue D_{min} values were 0.15, 0.17, and 0.22, resp.; and the red, green, and blue contrast values 1.45, 1.48, and 1.38 vs. 1.40, 1.40, and 1.30, resp.; 0.20, 0.40, and 0.35, resp.; and 1.20, 1.00, and 0.95, resp., for an N-(aminoethyl)ethanolamine-free control.

L19 ANSWER 18 OF 20 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 1972:513928 HCAPLUS
 DOCUMENT NUMBER: 77:113928
 TITLE: Synthesis of quaternary ammonium compounds containing a nitrodiaminopropane component
 AUTHOR(S): Torf, S. F.; Cherepanova, V. P.
 CORPORATE SOURCE: Inst. Eksp. Med., Leningrad, USSR
 SOURCE: Khimiko-Farmatsevticheskii Zhurnal (1972), 6(7), 27-9
 CODEN: KHFZAN; ISSN: 0023-1134
 DOCUMENT TYPE: Journal
 LANGUAGE: Russian

AB Reaction of (HOCH₂)₂C(Me)NO₂ (I) with p-(Me₂N)₂C₆H₄ (II) and p-(Et₂N)₂C₆H₄ and of (HOCH₂)₃CNO₂ with II gave (RC₆H₄NHCH₂)₂C(Me)NO₂ (III, R = Me₂N, Et₂N) and (RC₆H₄NHCH₂)₃CNO₂ (IV, R = Me₂N), resp., MeI derivs. of which at 1.0, 0.7, and 0.3 mg/kg had curare-form activity equal to (IV, less toxicity than) 0.1 mg d-tubocurarine/kg.

L19 ANSWER 19 OF 20 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 1959:4350 HCAPLUS
 DOCUMENT NUMBER: 53:4350

ORIGINAL REFERENCE NO.: 53:770i,771a-b
 TITLE: Polyepoxide-treated amine-modified thermoplastic phenol-aldehyde resins
 INVENTOR(S): De Groote, Melvin; Shen, Kwan-Ting
 PATENT ASSIGNEE(S): Petrolite Corp.
 DOCUMENT TYPE: Patent
 LANGUAGE: Unavailable
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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	US 2828276		19580325	US	
GI	For diagram(s), see printed CA Issue.				
AB	Cf. U.S. 2,771,437 (C.A. 51, 4690b). Phenol-aldehyde, resins were condensed with basic nonhydroxylated secondary polyamines and HCHO, followed by reaction with phenolic diepoxides to give products useful for breaking petroleum emulsions or as detergents, emulsifying, or wetting agents. A phenol-aldehyde resin (882 g.) (from p-Me3CC6H4OH and HCHO), 600 xylene, 176 (MeNHCH2)2, and 200 g. of 30% HCHO were heated for 19 h. at 80-46° and refluxed with removal of water. The condensate 116 g. in xylene was treated at 100-60° with 17 g. (p-O.CH2.CHCH2OC6H4)2CMe2 (I) for 6 h. to give a product represented by [(Amine) CH2 (Resin) CH2 (Amine)]2 DGE, where DGE is diglycidyl ether, a dark-red, viscous semisolid, insol. in H2O, soluble in xylene:MeOH 8:2 plus 5% gluconic acid. U.S. 2,828,277 relates to use of hydroxylated polyamines, such as (HOC2H4NHCH2)2; U.S. 2,828,280 to amines, such as NH(C2H4OH)2; U.S. 2,828,281 to amines, such as Et2NH; and U.S. 2,828,282 to cyclic amidines. U.S. 2,828,283 relates to products from I and phenol-aldehyde resins and their hydroxyalkylation derivs., without amine modification.				

L19 ANSWER 20 OF 20 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1949:15059 HCAPLUS
 DOCUMENT NUMBER: 43:15059
 ORIGINAL REFERENCE NO.: 43:2935h-i,2936a-f
 TITLE: Derivatives of tris(hydroxymethyl)nitromethane
 AUTHOR(S): Fort, Godfrey; McLean, Andrew
 SOURCE: Journal of the Chemical Society, Abstracts (1948) 1902-7
 CODEN: JCSAAZ; ISSN: 0590-9791
 DOCUMENT TYPE: Journal
 LANGUAGE: Unavailable

GI For diagram(s), see printed CA Issue.
 AB (HOCH2)3CNO2 (I) and SOCl2 in C5H5N, kept overnight at 40-50° and 1 hr. at 95-100°, give 72.5% (ClCH2)3CNO2 (II), m. 102-4°; a by-product (sometimes the main product) is 2-nitro-2-(chloromethyl)trimethylene sulfate, SO2(O.CH2)2C(NO2)CH2Cl, m. 86-9°. I (0.95 mol.), 2 mols. SOCl2, and 2.1 mols. C5H5N give 28% 2-nitro-2-(hydroxymethyl)trimethylene sulfate, m. 105-6°. Fe (100 g.) activated with concentrated HCl, added to 25 g. II in 400 cc. C6H6 and the mixture treated with 40 cc. H2O (2 cc. at 15-min. intervals), gives 82.5% (ClCH2)3CNH2 (III), pale yellow, b6.5 75-84°; SnCl2 in EtOH gives 65% III. Equivalent quantities of III and m-O2NC6H4CHO in EtOH, refluxed 2.5 hrs., give 70.5% N-(m-nitrobenzylidene)tris(chloromethyl)aminomethane, m. 83-4.5°. III (5 g.), heated 7 hrs. at 120°, gives 12% 2,2,5,5-tetrakis(chloromethyl)piperazine (IV), m. 105-6°, and 1.06 g. of the HCl salt of III; other methods for the preparation of IV are given. IV and BzCl in C5H5N give a compound m. 210-15° (decomposition);

p-MeC₆H₄SO₂Cl in C₅H₅N gives the monotosyl derivative, m. 138-40°, and the ditosyl derivative, m. 250° (decomposition). III and p-MeC₆H₄SO₂Cl in C₅H₅N, kept 2 days, give 94% tris(chloromethyl)-p-tolylsulfonamidomethane (V), m. 134-5°. V and p-MeC₆H₄SO₂NHNa, heated 10 hrs. at 140°, give 64% tris(p-tolylsulfonamidomethyl)-p-tolylsulfonamidomethane (VI), m. 197-8°; at 170 and 210° the yields are 38 and 24%, resp.; in boiling EtOH containing excess NaOH (9 hrs.) the yield is 42.4%. V and p-MeC₆H₄SO₂NMeNa (10 hrs. at 140°) give 14% tris(N-methyl-p-tolylsulfonamidomethyl)-p-tolylsulfonamidomethane, m. 195°. VI (8 g.) and 24 cc. 80% H₂SO₄, heated 3 hrs. at 200°, give 85.5% of the disulfate (VII), m. 280° (decomposition), of tris(aminomethyl)aminomethane (VIII), b₃₋₄ 120°. III (4 g.) in 23 cc. EtOH and 70 cc. NH₄OH (d. 0.88), heated 3 hrs. at 100-10° and the residue treated with H₂SO₄, give 91% VII. With excess Ba(OH)₂ in hot H₂O, VII gives 95% VIII; KOH gives 73%; VIII is best prepared from III without isolation of VII; tetrapicrate of VIII m. 140° tetra-HCl salt m. 270° (decomposition). The high-boiling fraction from VIII and p-MeC₆H₄SO₂Cl gives the hexatosyl derivative, C₅O₆H₆I₀1₂N₇S₆, m. 275-8°, of the secondary amine, [(H₂NCH₂)₃C]₂NH, derived from VIII by elimination of NH₃. VIII (4.85 g.) in 80 cc. H₂O containing 6.6 g. NaOH, treated (0.5 hr.) at 0-10° with 15.6 cc. ClCO₂Et (100 cc. ether added midway during the reaction) and the mixture stirred 2 hrs., gives 52% tris(carbethoxyaminomethyl)carbethoxyaminomethane (IX), m. 145-6°; simultaneous addition of HCO₂Et and alkali gives 20% IX and 1,3-bis[tris(carbethoxyaminomethyl)methyl]urea, m. 272° (decomposition). IX, added to HNO₃ and Ac₂O at 0°, gives a sticky gum; (O₂NNHCH₂)₃CNHNO₂ was not formed. (HOCH₂)₃CNH₂ and HCHO give 7a-(hydroxymethyl)-2,6-dioxapyrrolizidine (X); methiodide m. 215° (decomposition); acetate m. 94-5°. X (4 g.), added to 30 cc. HNO₃ (d. 1.52) and 25 cc. concentrated H₂SO₄ at 0-5° (15-30 min.), give 22% 3-nitro-4,4-bis(nitroxymethyl)oxazolidine, O₂NN.CH₂.O.CH₂.C(CH₂ONO₂)₂, m. 67.5-70°.

=> s polyazido

L21 18 POLYAZIDO

=> s l21 and azide

40607 AZIDE

8478 AZIDES

42978 AZIDE

(AZIDE OR AZIDES)

L22 9 L21 AND AZIDE

=> s l21 and py<=2002

22790379 PY<=2002

L23 11 L21 AND PY<=2002

=> d l21 ibib abs hitstr tot

L21 ANSWER 1 OF 18 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2005:921122 HCAPLUS

TITLE: Synthesis, Characterization, and Energetic Properties of Diazido Heteroaromatic High-Nitrogen C-N Compound
AUTHOR(S): Huynh, My Hang V.; Hiskey, Michael A.; Chavez, David E.; Naud, Darren L.; Gilardi, Richard D.

CORPORATE SOURCE: Dynamic Experimentation Division DX-2: Materials Dynamics, Los Alamos National Laboratory, Los Alamos, NM, 87545, USA

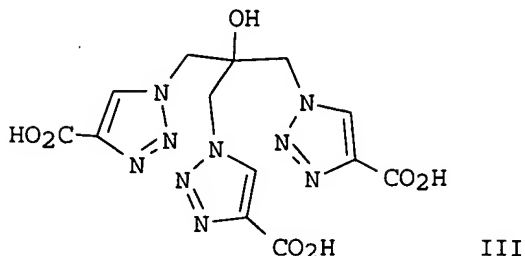
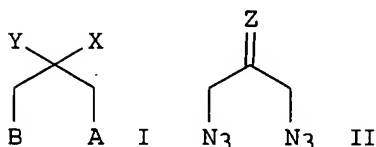
SOURCE: Journal of the American Chemical Society (2005),
127(36), 12537-12543
CODEN: JACSAT; ISSN: 0002-7863
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The synthesis, characterization, and energetic properties of diazido heteroarom. high-nitrogen C-N compound, 3,6-diazido-1,2,4,5-tetrazine (DiAT), are reported. Its normalized heat of formation (NAHf), exptl. determined using an additive method, is shown to be the highest pos. NAHf compared to all other organic mols. The unexpected azido-tetrazolo tautomerizations and irreversible tetrazolo transformation of DiAT are remarkable compared to all other **polyazido** heteroarom. high-nitrogen C-N compds., for example, 2,4,6-triazido-1,3,5-triazine; 4,4',6,6'-tetra(azido)hydrazo-1,3,5-triazine; 4,4',6,6'-tetra(azido)azo-1,3,5-triazine; and 2,5,8-tri(azido)-1,3,4,6,7,9,9b-heptaazaphenalene.
REFERENCE COUNT: 46 THERE ARE 46 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L21 ANSWER 2 OF 18 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2005:101974 HCAPLUS
DOCUMENT NUMBER: 142:359349
TITLE: Preparation of nitrogen-rich nanolayered, nanoclustered, and nanodendritic carbon nitrides
AUTHOR(S): Huynh, My Hang V.; Hiskey, Michael A.; Archuleta, Jose G.; Roemer, Edward L.
CORPORATE SOURCE: Dynamic Experimental Division, DX-2: Materials Dynamics Group, Los Alamos National Laboratory, Los Alamos, NM, 87545, USA
SOURCE: Angewandte Chemie, International Edition (2005), 44(5), 737-739
CODEN: ACIEF5; ISSN: 1433-7851
PUBLISHER: Wiley-VCH Verlag GmbH & Co. KGaA
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Only C and N atoms are present in the high-nitrogen compound 4,4',6,6'-tetra(azido)azo-1,3,5-triazine (TAAT), which is thus an ideal precursor for carbon nitrides. Controlled pyrolysis of TAAT afforded novel nitrogen-rich carbon nitrides in the form of nanolayers (C2N3), nanoclusters (C3N5), and nanodendrites (C3N5). The pyrolyses occur at low temperature and without applied pressure and require no vacuum systems, extraction, carbonization, or purification
REFERENCE COUNT: 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L21 ANSWER 3 OF 18 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2005:29032 HCAPLUS
DOCUMENT NUMBER: 142:114074
TITLE: Preparation of **polyazido** carboxylic acid esters
INVENTOR(S): Dave, Paritosh R.; Duddu, Raja G.; Damavarapu, Reddy; Gelber, Nathaniel; Yang, Kathy; Surapaneni, C. Rao
PATENT ASSIGNEE(S): United States Dept. of the Army, USA
SOURCE: U.S., 9 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6841690	B1	20050111	US 2003-604778	20030815
US 6965842	B1	20051115	US 2003-604777	20030815
PRIORITY APPLN. INFO.: CI			US 2002-319801P	P 20021219



AB This invention relates to a series of novel compds., such as I [X = N₃, OH, ONO₂, NO₂; Y = CH₂N₃, NO₂; A, B = N₃, 4-carboxytriazolomethyl], and II [Z = CH₂, O, NOH, 2,4-dihydrophenylhydrozono], including 2-azido-2-azidomethyl-1,3-diazidopropane, 2-azidomethyl-2-hydroxy-1,3-diazidopropane, 2-azidomethyl-2-nitrato-1,3-diazidopropane, 2-azidomethyl-2-nitro-1,3-diazidopropane, 2,2-dinitro-1,3-diazidopropane, methallyldiazide, a dimer of methallyldiazide, comprising 3a,8a-bis-azidomethyl-3a,4,8a,9-tetrahydro-3H,8H-bis[1,2,3]triazolo[1,5-a; 1'',5''-d]pyrazine, 1,3-diazoacetone, and 2-oximido-1,3-diazidopropane. Also shown are reaction intermediates of these compds., including 2,2-bis(chloromethyl)oxirane, and 2,2-bis(azidomethyl)oxirane. In addition, a number of potentially useful energetic compds. have been prepared from the low mol. weight **polyazido** compds. above, including N-2(azido-1-azidomethyl-ethylidene)-N'-(2,4-dinitrophenyl)-hydrazine (7-DNPH), 1,3-bis(4-carboxytriazolyl)2,2-dinitropropane, tris(4-carboxytriazolomethyl)methanol, benzene-1,3,5-tricarboxylic acid tris(2-azido-1,1-bisazidomethyl-ethyl)ester, adamantane 1,3,5,7-tetracarboxylic acid tetrakis(2-azido-1,1-bisazidomethyl-ethyl)ester, adamantane carboxylic acid (2-azido-1,1-bisazidomethyl-ethyl)ester, cubane 1,3,5,7-tetracarboxylic acid tetrakis (2-azido-1,1-bisazidomethyl-ethyl)ester, cubane 1,4-dicarboxylic acid bis(2-azido-1,1-bisazidomethyl-ethyl)ester. Thus, tris(4-carboxytriazolomethyl)methanol (III) was prepared by the reaction of 2-azidomethyl-2-hydroxy-1,3-diazidopropane I [A, B = N₃; X = CH₂N₃; Y = OH] (also prepared) with propiolic acid.

REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L21 ANSWER 4 OF 18 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:809497 HCAPLUS

DOCUMENT NUMBER: 141:334417

TITLE: **Polyazido** high-nitrogen compounds: hydrazo- and azo-1,3,5-triazine

AUTHOR(S): Huynh, My-Hang V.; Hiskey, Michael A.; Hartline, Ernest L.; Montoya, Dennis P.; Gilardi, Richard

CORPORATE SOURCE: Dynamic Experiment Division, Los Alamos National

SOURCE: Laboratory, Los Alamos, NM, 87545, USA
Angewandte Chemie, International Edition (2004),
43(37), 4924-4928
CODEN: ACIEF5; ISSN: 1433-7851
PUBLISHER: Wiley-VCH Verlag GmbH & Co. KGaA
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 141:334417
AB The synthesis and properties of novel 4,4',6,6'-tetra(azido)hydrazo-1,3,5-triazine and 4,4',6,6'-tetra(azido)azo-1,3,5-triazine (I), both with 6 carbon atoms and 20 nitrogen atoms, were reported, from hydrazinolysis of 4,4',6,6'-tetrachlorohydrazo-1,3,5-triazine. The two products demonstrated that hydrazo and azo linkages can be used to desensitize **polyazido** high-nitrogen compds., and also decrease their volatility. I had the highest exptl. measured heat of formation reported for energetic organic compds. (+2171 kJ/mol).
REFERENCE COUNT: 37 THERE ARE 37 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L21 ANSWER 5 OF 18 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2004:809494 HCAPLUS
DOCUMENT NUMBER: 141:381721
TITLE: High-energy-density materials: synthesis and characterization of $N_5+[P(N_3)_6]^-$, $N_5+[B(N_3)_4]^-$, $N_5+[HF_2] \cdot nHF$, $N_5+[BF_4]^-$, $N_5+[PF_6]^-$, and $N_5+[SO_3F]^-$
AUTHOR(S): Haiges, Ralf; Schneider, Stefan; Schroer, Thorsten; Christe, Karl O.
CORPORATE SOURCE: Loker Research Institute, University of Southern California, Los Angeles, CA, 90089-1661, USA
SOURCE: Angewandte Chemie, International Edition (2004),
43(37), 4919-4924
CODEN: ACIEF5; ISSN: 1433-7851
PUBLISHER: Wiley-VCH Verlag GmbH & Co. KGaA
DOCUMENT TYPE: Journal
LANGUAGE: English
AB A number of pentanitrogen cation, N_5^+ , with energetic **polyazido** anions, $[P(N_3)_6]^-$ and $[B(N_3)_4]^-$, as well as other N_5^+ salts with $[HF_2] \cdot nHF$, $[BF_4]^-$, $[PF_6]^-$, and $[SO_3F]^-$. The $[P(N_3)_6]^-$ and $[B(N_3)_4]^-$ salts contained 91 and 96 weight% N, resp. The thermally unstable compound $N_5+HF_2 \cdot nHF$ was prepared by metathesis from N_5SbF_6 and $CsHF_2$. Its usefulness as a reagent for the synthesis of new N_5^+ salts was demonstrated.
REFERENCE COUNT: 49 THERE ARE 49 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L21 ANSWER 6 OF 18 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2004:137939 HCAPLUS
DOCUMENT NUMBER: 140:357709
TITLE: Preparation of cage molecule based **polyazido** core units for dendrimer synthesis
AUTHOR(S): Dave, Paritosh R.; Duddu, Raja; Yang, Kathy; Damavarapu, Reddy; Gelber, Nathaniel; Surapaneni, Rao; Gillardi, Richard
CORPORATE SOURCE: GEO-CENTERS, INC. at ARDEC, Picatinny Arsenal, NJ, 07806-5000, USA
SOURCE: Tetrahedron Letters (2004), 45(10), 2159-2162
CODEN: TELEAY; ISSN: 0040-4039
PUBLISHER: Elsevier Science B.V.
DOCUMENT TYPE: Journal

LANGUAGE: English

AB Core mols. based on benzene-, cubane-, and adamantane-polycarboxylates with peripheral **polyazido** substitution were prepared. The first synthesis of 1,3-diazidoacetone and its conversion to the corresponding oxime, DNPH, and 2,2-dinitro derivs. is also reported. All azido compds. should be considered dangerous and proper precautions should be taken during handling and storage of these mols.

REFERENCE COUNT: 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L21 ANSWER 7 OF 18 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2003:183497 HCAPLUS

TITLE: Main-group **polyazido** compounds

AUTHOR(S): Haiges, Ralf; Boatz, Jerry A.; Christe, Karl; Gerken, M.; Schneider, Stefan; Schroer, Thorsten; Tham, Fook S.; Vij, Ashwani

CORPORATE SOURCE: Loker Hydrocarbon Research Institute, University of Southern California, Los Angeles, CA, 90089, USA

SOURCE: Abstracts of Papers, 225th ACS National Meeting, New Orleans, LA, United States, March 23-27, 2003 (2003) INOR-454. American Chemical Society: Washington, D. C.

CODEN: 69DSA4

DOCUMENT TYPE: Conference; Meeting Abstract

LANGUAGE: English

AB The preparation of main group **polyazido** compds. will be reported. Their phys., spectroscopic and structural properties as well as theor. calcns. will be discussed.

L21 ANSWER 8 OF 18 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2002:605702 HCAPLUS

DOCUMENT NUMBER: 138:75615

TITLE: Novel **polyazido**/polynitrato compounds derived from methallyl dichloride

AUTHOR(S): Surapaneni, Rao; Damavarapu, Reddy; Duddu, Raja; Dave, Paritosh R.; Gilardi, Richard D.

CORPORATE SOURCE: US Army Armament Research Development and Engineering Center, Picatinny Arsenal, NJ, 07806-5000, USA

SOURCE: International Annual Conference of ICT (2002), 33rd(Energetic Materials), 147/1-147/5

CODEN: IACIEQ; ISSN: 0722-4087

PUBLISHER: Fraunhofer-Institut fuer Chemische Technologie

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Several polynitrato and **polyazido** compds., derived from a lower homolog of pentaerythritol and have one less methylene unit, were synthesized in order to develop lead-free primary explosives. The compds. were derived from methallyl dichloride by such reactions as epoxidn., nucleophilic substitution, and ring-opening nitration. Nitration. These compds. are of potential interest as energetic plasticizers and their multiple functional groups can be exploited to prepare novel dendritic structures.

L21 ANSWER 9 OF 18 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1997:102122 HCAPLUS

DOCUMENT NUMBER: 126:188091

TITLE: High-energy hydroxy-terminated **polyazido** polymers used as binder for propellants

INVENTOR(S): Huang, Der-shing; Rindone, Renato R.

PATENT ASSIGNEE(S): Aerojet-General Corporation, USA
SOURCE: U.S., 10 pp., Cont.-in-part of U.S. Ser. No. 686,953,
abandoned.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5597978	A	19970128	US 1987-98529	19870918

PRIORITY APPLN. INFO.: US 1984-686953 B2 19841227

AB Hydroxy-terminated aliphatic polyethers have the formula $\text{HO}(\text{CR}_1\text{R}_4\text{CR}_2\text{R}_4\text{O})_n\text{H}$ where R1, R2, R3, and R4 are independently selected from H, CH₂N₃, and CHN₃CH₂N₃, the total number of azide groups per monomer unit is 2-3, and n is an integer 2-40. Copolymers of the monomer units in the above formula with other, known azido-substituted monomer units further provide energy outputs at preselected levels based on the proportions of each type of monomer present.

L21 ANSWER 10 OF 18 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1996:285147 HCAPLUS

DOCUMENT NUMBER: 124:320922

TITLE: Synthesis of homocubane-based energetic molecules

AUTHOR(S): Guan, Xiaopei; Du, Jianwei; Sun, Jianguang; Su, Zhuang; Yu, Yongzhong

CORPORATE SOURCE: Beijing Institute Technology, College Chemical Engineering and Materials Science, Beijing, 100081, Peop. Rep. China

SOURCE: Proceedings of the Beijing International Symposium on Pyrotechnics and Explosives, 3rd, Beijing, Nov. 6-9, 1995 (1995), 139-142. Editor(s): Yuxiang, Ou. China Ordnance Society: Beijing, Peop. Rep. China.
CODEN: 62RIAT

DOCUMENT TYPE: Conference

LANGUAGE: English

AB Energetic homocubane derivs. were synthesized and characterized for use as explosives and propellant ingredients. Six polynitro and **polyazido** diesters of homocubane-2,4-dicarboxylic acid were synthesized as possible energetic plasticizers; 2,4-dicyano and dinitro homocubanes were also synthesized as models for more highly substituted homocubanes. Dinitrate and diperchlorate salts of 2,4-diaminohomocubane were prepared via ion exchange. Further nitration of 2,4-bis(fluorodinitroethylamino)homocubane and homocubane-2,4-bis(N-trinitroethylamide) is in progress.

L21 ANSWER 11 OF 18 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1996:215534 HCAPLUS

DOCUMENT NUMBER: 125:11288

TITLE: Chemoenzymic methods for the preparation of optically active cyclic **polyazido** alcohols from easily available achiral starting materials

AUTHOR(S): Gruber-Khadjawi, Mandana; Honig, Helmut; Illaszewicz, Carina

CORPORATE SOURCE: Inst. Org. Chem., Tech. Univ. Graz, Graz, A-8010, Austria

SOURCE: Tetrahedron: Asymmetry (1996), 7(3), 807-14
CODEN: TASYE3; ISSN: 0957-4166

PUBLISHER: Elsevier
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Optically active 2,5-diazo-1,4-cyclohexanediol, 4,6-diazo-1,3-cyclohexanediol and 2,5-diazo-1,4-cyclohexanediol as precursors for polyfunctional cyclic amino alcs. were prepared by enzymic hydrolysis of the resp. butyrates with lipases from *Candida rugosa* (CRL), *Pseudomonas cepacia* (PCL), and *Geotrichum candidum* (GCL). The enantiomeric excesses obtained were very high.

L21 ANSWER 12 OF 18 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1995:371347 HCAPLUS
DOCUMENT NUMBER: 122:213678
TITLE: Studies on reactions of polynitrostilbenes with sodium azide
AUTHOR(S): Zengguo, Feng; Boren, Chen
CORPORATE SOURCE: Dep. Chem. Engineering, Beijing Inst. Technol., Beijing, 100081, Peop. Rep. China
SOURCE: Journal of Energetic Materials (1994), 12(4), 237-47
CODEN: JOEMDK; ISSN: 0737-0652
PUBLISHER: Dowden, Brodman & Devine, Inc.
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Three **polyazido**(nitro)stilbenes were prepared from polynitrostilbenes and sodium azide. Addition of 2 mol of this nucleophile to a solution of 3-chloro-2,2',4,4',6,6'-hexanitrostilbene in DMF resulted in the substitution of azido groups for one nitro group and the chlorine in the same benzene ring. The reactions of 2,2',4,4',6,6'-hexanitrostilbene with 2 and 4 mol of NaN₃ exhibit a different reactivity and selectivity and produce sym. substituted azido polynitrostilbenes.

L21 ANSWER 13 OF 18 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1994:110978 HCAPLUS
DOCUMENT NUMBER: 120:110978
TITLE: The compatibility of azido-plasticizers with binders
AUTHOR(S): Yang, KeXi; Ding, FaXiang; Dai, XianYa; Tan, JingYu
CORPORATE SOURCE: Xin Feng Chem. Eng. Inst., Shanghai, Peop. Rep. China
SOURCE: Symposium on Chemical Problems Connected with the Stability of Explosives, [Proceedings] (1993), 9th, 267-73
CODEN: SCPEDW; ISSN: 0348-7180
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Azido-type plasticizers can be used as energetic plasticizers in composite solid propellants because of their pos. heat of formation and high densities. Azido group-containing plasticizers like GAP can also form azido polymer-containing composite solid propellants when they become components of propellants. From weight loss tests at 80°, azido-oxypropylene dinitrate (AZP-2) and azido group-terminated **polyazido**-oxypropylene (AZP-3), when mixed with binders, were chemical incompatible with unsatd. binders and cyano group-containing binders. Carboxylic acids can catalyze the decomposition of azides. The above plasticizers did not react with propylene oxide-butylene oxide copolymer, but they were also insol. in it.

L21 ANSWER 14 OF 18 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1994:8208 HCAPLUS
DOCUMENT NUMBER: 120:8208
TITLE: Process for preparation of **polyazido**

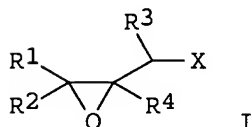
alcohols from oxiranes, and preparation of derived polyamino alcohols, **polyazido** thiols, and cyclic ureas

INVENTOR(S): Caubere, Paul; Forconi, Herve
 PATENT ASSIGNEE(S): Etat Francais, Fr.
 SOURCE: Can. Pat. Appl., 17 pp.
 CODEN: CPXXEB

DOCUMENT TYPE: Patent
 LANGUAGE: French
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
CA 2083465	AA	19930522	CA 1992-2083465	19921120
FR 2684102	A1	19930528	FR 1991-14541	19911121
FR 2684102	B1	19940311		
US 5442080	A	19950815	US 1992-980217	19921123
PRIORITY APPLN. INFO.:			FR 1991-14541	A 19911121
OTHER SOURCE(S):			CASREACT 120:8208; MARPAT 120:8208	

GI



AB Various **polyazido** alcs. are prepared by reaction of oxiranes, e.g. I [X = nucleofugal substituent; R1 = H, (halo)alkyl, (un)substituted aryl; R2, R3 = H, (un)substituted alkyl or aryl; R4 = H, (un)substituted alkyl, (alkoxy)aryl], with a metal azide in an aqueous medium (56-93% yield). The azido alcs., e.g. diazido alcs. N3CR1R2CR4(OH)CHR3N3 or N3CR1R2CR4(N3)CHR3OH, are hydrogenated to give the corresponding diamino alcs. (78-96%), which are cyclized with COCl2 to give cyclic ureas (93-98%). Alternatively, a diazido alc. may react with SOCl2-pyridine (87%) and then NaSH-NaOH (40%) to give diazido thiols. Thus, reaction of 200 mmol NaN3 with 50 mmol epichlorohydrin in H2O at 80° in the presence of 10 mmol tricaprylmethylammonium chloride (preferred catalyst) gave 93% 1,3-diazido-2-propanol.

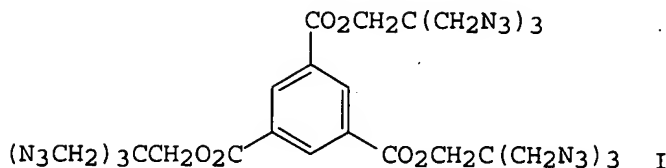
L21 ANSWER 15 OF 18 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1987:617094 HCAPLUS
 DOCUMENT NUMBER: 107:217094
 TITLE: **Polyazido** esters
 INVENTOR(S): Frankel, Milton B.; Wilson, Edgar R.
 PATENT ASSIGNEE(S): Rockwell International Corp., USA
 SOURCE: U.S., 3 pp.
 CODEN: USXXAM

DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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US 4683085 A 19870728 US 1985-766459 19850819
 PRIORITY APPLN. INFO.: US 1985-766459 19850819
 OTHER SOURCE(S): CASREACT 107:217094
 GI



AB Azido esters $XCH_2C(CH_2N_3)_2CH_2O_2CCH_2CH_2C(NO_3)_2$ (I; $X = N_3, ONO_2$) and II, useful as energetic plasticizers for propellants (each N_3 group adds .apprx.85 kcal/mol energy to the system), were prepared from acid chlorides and pentaerythritol azides. A solution of $(O_2N)_3CCH_2CH_2COCl$, $HOCH_2C(CH_2N_3)_3$, and $ClCH_2CH_2Cl$ was refluxed 70 h to give 91.9% I ($X = N_3$).

L21 ANSWER 16 OF 18 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1986:555611 HCAPLUS
 DOCUMENT NUMBER: 105:155611
 TITLE: Chemical case bond system with azido compound bonding
 INVENTOR(S): Dehm, Henry C.
 PATENT ASSIGNEE(S): Hercules Inc., USA
 SOURCE: U.S., 8 pp.
 CODEN: USXXAM
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 4604248	A	19860805	US 1985-697094	19850131
PRIORITY APPLN. INFO.:			US 1985-697094	19850131

AB Solid propellants containing polyfunctional crosslinking components are bonded to rocket motor casings by the nitrene insertion reaction. Thin azido compound films, consisting of 1) a polyfunctional azido compound or polymer with crosslinker-reactive functionality for the propellant crosslinker and/or 2) a **polyazido** compound or polymer and a polyfunctional graftable compound or polymer having reactive functionality for the azido functionality and crosslinker-reactive functionality for the propellant crosslinker, are applied to the inner casing surface, energized to react the azide functionality with the insulator and graft the crosslinker-reactive functionality to the insulator surface, placing the propellant in contact with the grafted surface, and curing to react the propellant crosslinker with the functionality bonded to the insulator surface. Thus, EPDM insulator sheets are degreased and brush-coated with 1 part bis(β -azidoformyloxyethyl)isophthalate and 1 part 2-hydroxypropylcellulose in 15 parts acetone, the solvent is removed, the air temperature is raised to $140 \pm 3^\circ$ for 40 min, and the sheet is cooled, and placed into a matching polyethylene-coated cardboard carton. A standard isocyanate-cured slurry is cast 1 in. deep against the grafted surface and cured at $120^\circ F$. In tension, shear, and peel tests on the cured and machined product all failures were attributed to the propellant whereas controls made with ungrafted sheets failed at the.

insulator-propellant interface. The effects of different curing conditions and of cellulose acetate butyrate, Hercules D-63 (a disulfonylazide), Et hydroxy cellulose, and bis(β -hydroxyethyl)isophthalate also are demonstrated.

L21 ANSWER 17 OF 18 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1977:16869 HCAPLUS
DOCUMENT NUMBER: 86:16869
TITLE: Polynucleotides. XL. Synthesis and properties of poly 2'-azido-2'-deoxyadenylic acid
AUTHOR(S): Ikehara, Morio; Fukui, Toshikazu; Kakiuchi, Nobuko
CORPORATE SOURCE: Fac. Pharm. Sci., Osaka Univ., Suita, Japan
SOURCE: Nucleic Acids Research (1976), 3(8), 2089-99
CODEN: NARHAD; ISSN: 0305-1048
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Poly(2'-azido-2'-deoxyadenylic acid) (Poly Az) was synthesized from 2'-azido-2'-deoxyadenosine diphosphate by polynucleotide phosphorylase. Poly Az has uv absorption properties similar to poly A and hypochromicity of 40% at 0.1 M Na⁺ and neutrality. CD curve also resembled that of poly A with smaller ellipticity. Titration of poly Az with HCl gave a transition at pH 5.5, but the exact structure of the acid-form complex was not elucidated. Upon mixing with poly U, poly Az forms 1:1 and 1:2 complexes having melting temps. higher than that of poly A.poly U complex in the same condition.

L21 ANSWER 18 OF 18 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1970:499592 HCAPLUS
DOCUMENT NUMBER: 73:99592
TITLE: Poly(azidoformamides), used as foaming agents in polyolefins
INVENTOR(S): Suzuki, Shigeto
PATENT ASSIGNEE(S): Chevron Research Co.
SOURCE: U.S., 2 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 3526644	A	19700901	US 1967-634138	19670427
PRIORITY APPLN. INFO.:			US 1967-634138	A 19670427

AB Poly(azidoformamides) (I), R(NHCON₃)_x, in which x = 2-4 and R is a polyvalent hydrocarbyl group, are prepared by treating a hydrocarbyl polyisocyanate with HN₃, and are mixed with polyolefins and heated to form noncrosslinked foamed compns. Thus, a CHCl₃ solution of NH₃ was mixed with hexamethylene diisocyanate (II) to yield I (x = 2, R = hexamethylene), which was blended with polypropylene and poly(vinyl chloride) and heated to form noncrosslinked foamed polymers. m-Xylene, m-phenylene, and 4,4-diphenylmethane diisocyanate were also used instead of II, and produced similar foaming agents.

=> log y

COST IN U.S. DOLLARS

SINCE FILE	TOTAL
ENTRY	SESSION
322.73	978.58

FULL ESTIMATED COST

11/17/2005 10604774.trn

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)	SINCE FILE	TOTAL
CA SUBSCRIBER PRICE	ENTRY	SESSION
	-70.08	-70.08

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